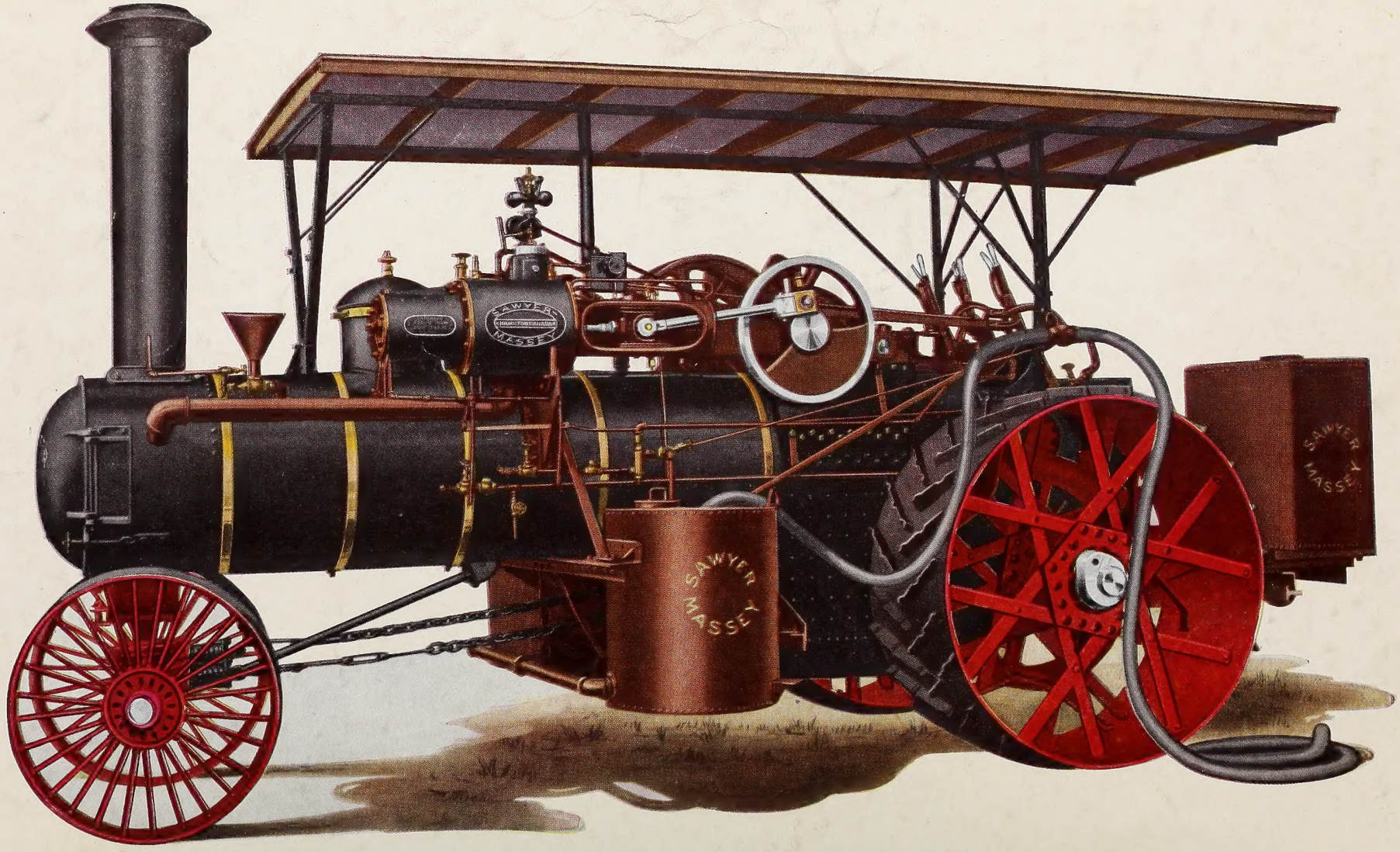
NORTH-WEST EDITION

SAWYER-MASSEY Co

LIMITED

HAMILTON
CANADA

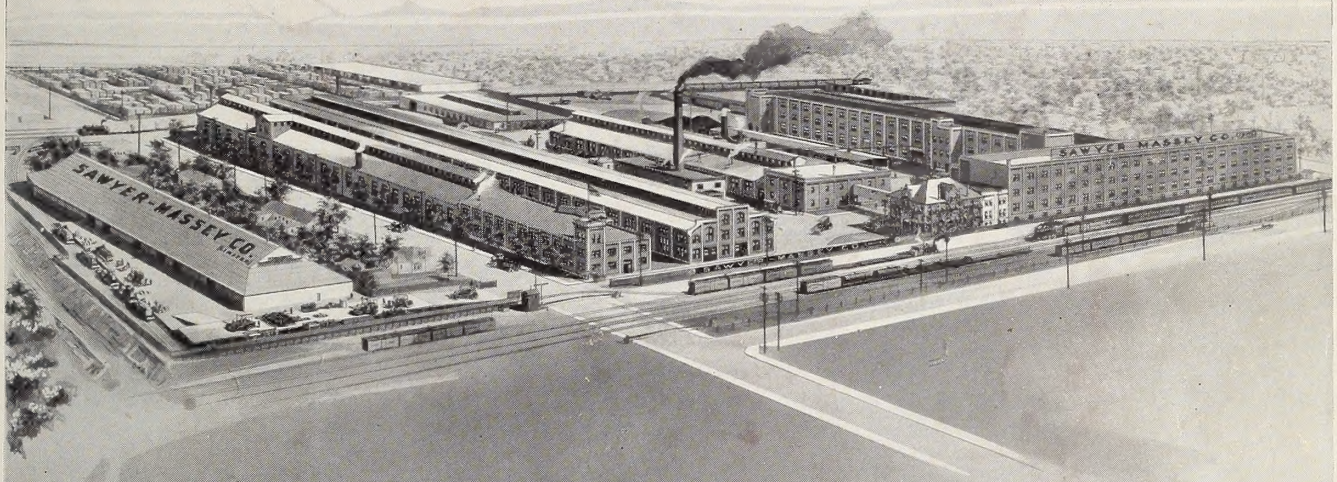


Sawyer-Massey Compound, Rear Mounted Engine for Plowing and Threshing
The Premier Engine of Canada

LORNE J. McRITCHIE
Box 138
ZEALANDIA — SASK.

CATALOG — 78

SAWYER-MASSEY MACHINERY



LORNE J. McRITCHIE
Box 138
ZEALANDIA — SASK.

THE OLDEST AND LARGEST ENGINE AND THRESHER MANUFACTURERS IN THE DOMINION

SAWYER-MASSEY CO.
LIMITED

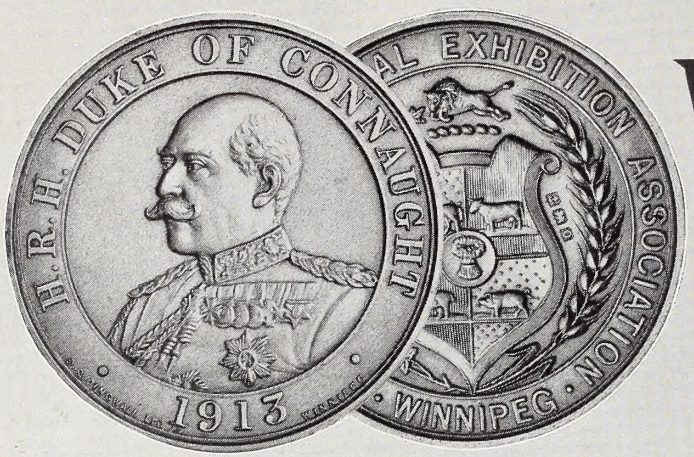
HOME OFFICE AND FACTORIES

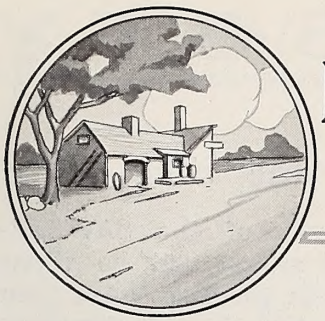
HAMILTON — ONTARIO

BRANCH OFFICES AND WAREHOUSES

WINNIPEG, MANITOBA — REGINA, SASKATCHEWAN
CALGARY, ALBERTA — BUENOS AIRES, ARGENTINA

Winning Gold Medal at Winnipeg





LOOKING BACKWARD AND FORWARD

LORNE J. McEACHIE
Box 138
ZEALANDIA — SASK.

From 1836 to 1914

THE year 1913 marked a wonderful advance in the progress of the Dominion, despite certain adverse conditions. Canada is fast adopting better farming methods, the good roads movement is growing, and Canadian farmers are more thrifty and prosperous than ever before.

The whole world grows when the farmer grows. When Canadian farmers are progressive and prosperous, then business conditions in general are good. Merchants and manufacturers alike share in the farmer's prosperity. Everyone puts his best foot forward and takes a full stride of real progress. Labor saving machinery comes more into demand and improved methods are required to keep pace with the spirit of the times.

Seventy-Seven Years of Progress

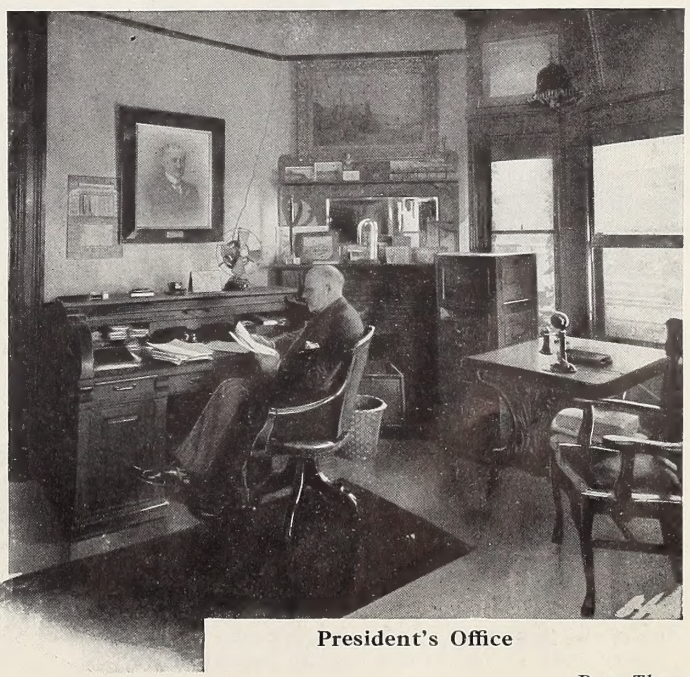
Growth is always co-operative. The law of life and being demands evolution and development in every unit of society as society progresses, otherwise, in those units which stand still, degeneration and decay set in. Ours is a dynamic society, and if we do not move forward in time with our neighbors, our course must necessarily be backward. There is really no standing still. It is either progression or retrogression.

Thus, with the opening of the year 1914, SAWYER-MASSEY reaches a new milestone, moving on the crest of the wave of progress. For 77 years the growth and expansion of Canada has been coincident with that of the SAWYER-MASSEY Company.

During this long period of more than three-quarters of a century, since 1836, there has been a remarkable development of the SAWYER-MASSEY line of threshing and farm power machinery and the factories in which it is made. Wherever improvements have been necessary, SAWYER-MASSEY has been the first to anticipate and to provide for them. That is the real secret of the extraordinary growth of this organization.

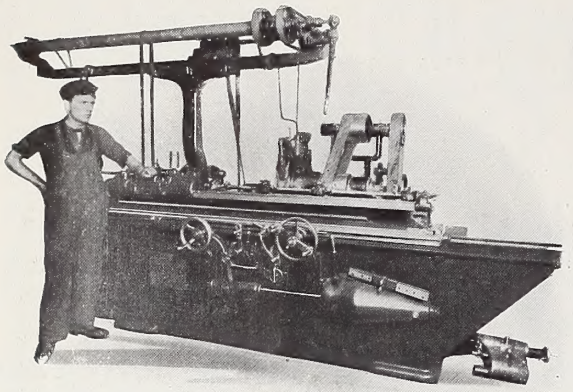
Wins Gold Medal

The past year has emphasized the SAWYER-MASSEY record of progress in a significant manner. At the Winnipeg International Motor Plowing Contest of July, 1913, conceded by experts everywhere to be the most important competition of power machinery in the world, the SAWYER-MASSEY Gas Tractor outclassed American competitors, and was awarded the First Prize and Gold Medal, scoring a notable triumph for Canadian manufacturers. The work of this tractor was magnificent. With the eyes of the motor world on this contest, a Canadian-made engine triumphed. Yet this is but an incident in the career of this great manufacturing industry.



President's Office

Three other SAWYER-MASSEY Tractors were awarded medals in this contest. These engines have all demonstrated the fact that they are up to and a little ahead of the times. SAWYER-MASSEY machinery has set the pace for Canada throughout 77 big years of success, and now sets the pace for other nations as well.



Special Grinder used to finish Sawyer-Massey Cam-Shafts. It insures absolute accuracy and uniformity.

Superiority in the Field

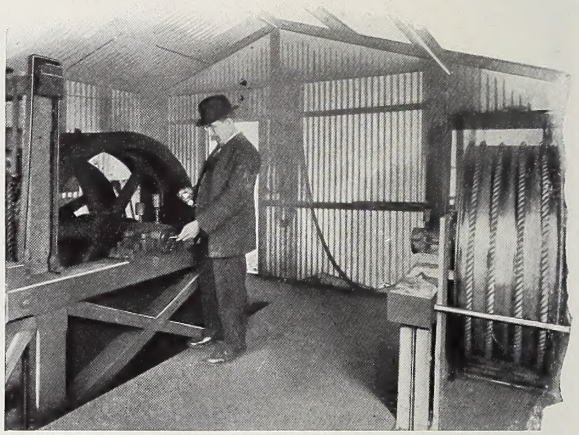
But the greatest triumphs of the SAWYER-MASSEY line have been and always will be where superiority counts the most—in the field. Ask your father or your grandfather what line of threshing machinery was the standard in his day, and then ask them what is now the standard. They will tell you without any hesitation: "SAWYER-MASSEY—The Premier Line."

In plowing, threshing and road-construction SAWYER-MASSEY machinery has always been foremost in the opinion of the men who have the actual work to do. And they know. You have but to ask them.

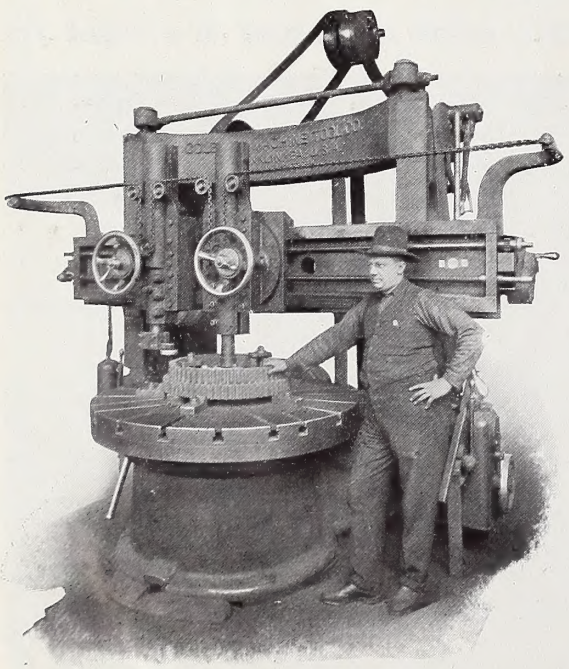
The Home of Sawyer-Massey

The Sawyer-Massey factories are located at Hamilton, Canada, where the business had its beginning back in 1836. Hamilton, then a village, is today a prosperous manufacturing city of over 100,000 people.

The several factory buildings have an immense floor area. They are so situated as to afford the very best shipping advantages. More than eight hundred skilled and experienced workmen are employed. This great productive force is constantly being increased to provide for the demands of a growing trade. At the opening of this introduction, the artist has given a hint of the first home of the company—a little shop—located on the present site of the Hotel Royal on James Street. On the same page is presented an illustration of the present home of Sawyer-Massey. Truly, the years have wrought a marvelous change.



Showing the Inspector taking the readings off one of the Brakes on which every Sawyer-Massey engine is tested and proved up to standard before it is shipped.



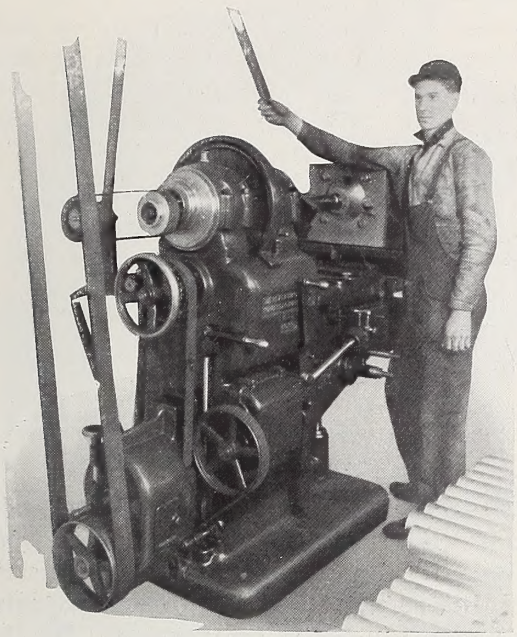
One of the large Special Boring Mills used for heavy duty work in the Steam Engine Department.

Growth Has Kept Pace

This growth and development of the Sawyer-Massey Company has been steady, keeping step with the industrial development of the Dominion. These are indicative of Canadian thrift and genius. They are typical of many organizations whose careers help make up the history of Canada.

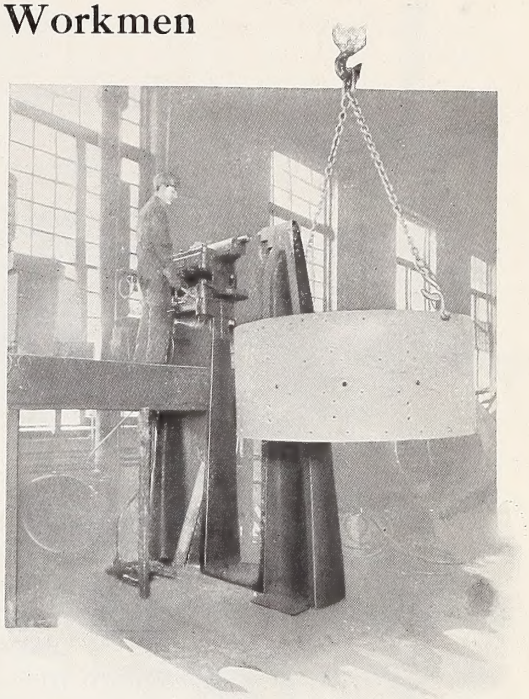
The products of Eastern Canadian factories have been a remarkable force in the agricultural development of the great Provinces of Alberta, Saskatchewan, Manitoba and British Columbia in the West. Nothing has been of greater service, save the railroads, which made it easy to reach those sections and to convey produce and other merchandise essential to the welfare and happiness of settlers and those who followed. But it must be admitted that without labor saving machinery—the steam and gas tractor engine, the thresher and separator for taking care of the vast volume of grain produced—comparatively small results would have been achieved.

Best Materials and Best Workmen



An Internal Grinder, putting a mirror finish on Sawyer-Massey Gas Tractor Cylinders.

A machine to give the required and desired service—to meet its purpose best—must be built of materials of the highest quality. "Not how cheap, but how well" has always been the Sawyer-Massey Watchword. Every precaution is taken in the factories in the selection of raw materials. Every item that enters into Sawyer-Massey products must meet exacting tests, found necessary through long experience in machinery building. Trained men inspect every piece and part, from the bars of metal and sticks of timber, to castings, rods, tubes, bolts and nuts. Nothing escapes their scrutiny and watchfulness.

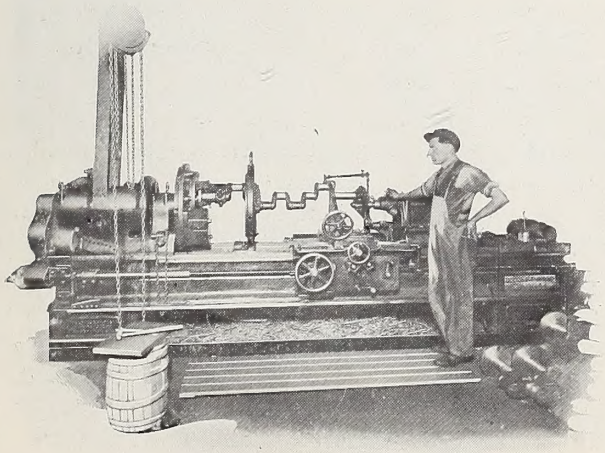


Hydraulic Yoke Riveter Handling a Rim for a Sawyer-Massey Tractor Rear Wheel.

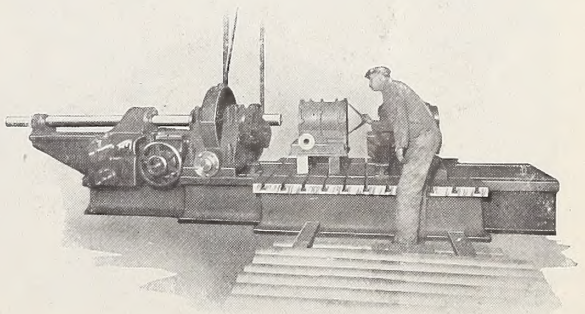
Best Factory Equipment

In producing machinery best adapted to the uses of the farmer—who deserves the best and rightfully demands it—the very best factory equipment is a vital factor.

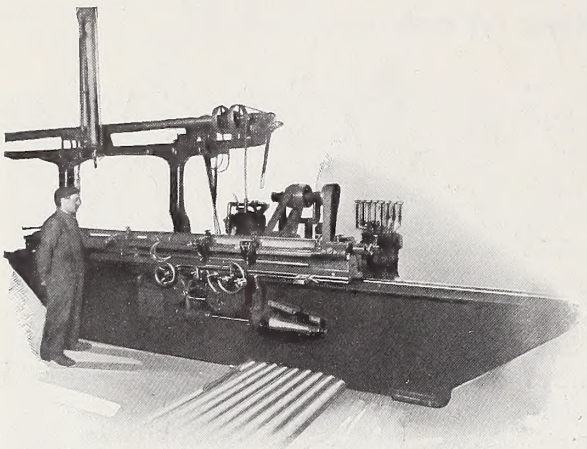
The reader can readily realize that in mammoth factory buildings, such as these, turning out a large quantity of machines each season, a vast amount of special machinery is an essential aid. This must be studied out, devised, built and installed, all of which means the investment of a large amount of capital. Then these machines must be operated by trained mechanics, so that the highest factory efficiency may be secured and maintained. One can get some idea of the high class and modern machinery used by reviewing the illustrations presented throughout these introductory pages.



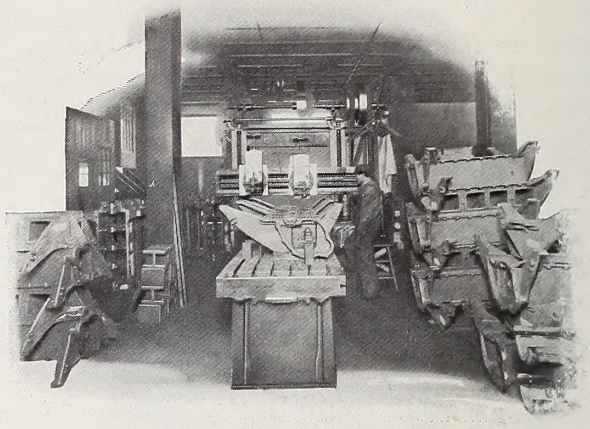
Special Machine for getting drop-forged Crank Shafts for the Sawyer-Massey Gas Tractor ready for the finishing work of the grinder.



Special Machine for boring Cylinders for Sawyer-Massey Steam Engines.



External Grinder on which all shafting used in Sawyer-Massey Machines are finished to exact dimensions.

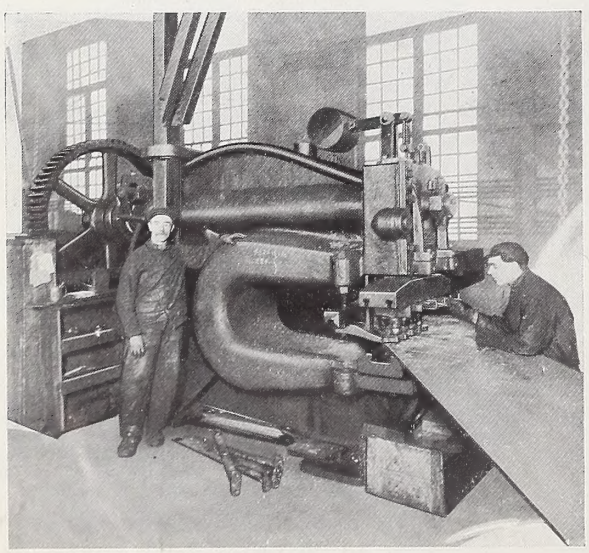


Huge Planer on which several beds for Sawyer-Massey Gas Tractors are finished at the same time.

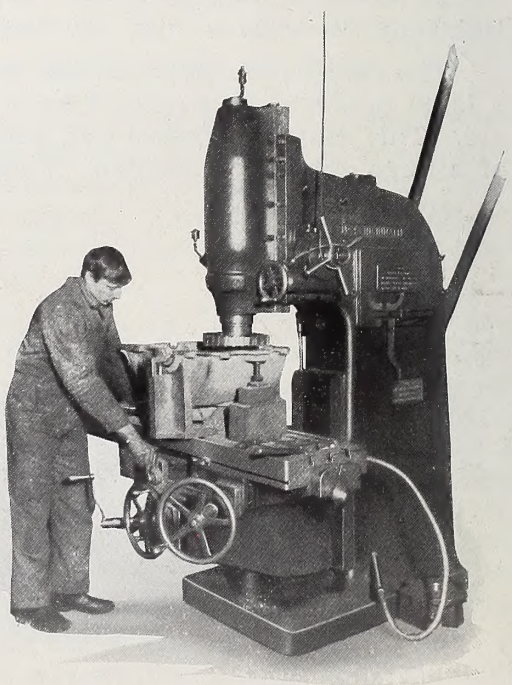
Special machinery is used in the manufacture of Sawyer-Massey products essentially to assist the workmen rather than to replace workmen. It insures precision and accuracy in the shaping and making of parts. This is necessary in large production. The purchaser is most concerned when he stops to contemplate that uniformity of parts means standardization—interchangeable units of construction and equipment—the advantages of which are easily understood. By this method, any part that for any reason gives way, or wears out, can be replaced with another of the same pattern that will at once fit perfectly and thus insure the fullest measure of service to the owners of Sawyer-Massey machines.

Inspection Before Shipment

Every Sawyer-Massey Engine is tested thoroughly by a long run on a friction brake, as well as by road test, before it is loaded for shipment. The record of each test is taken by a special inspector on an indicator card, and copy of each card kept on file.



The Immense Special Multiple Open Gap Punch, used in making Sawyer-Massey Boilers.

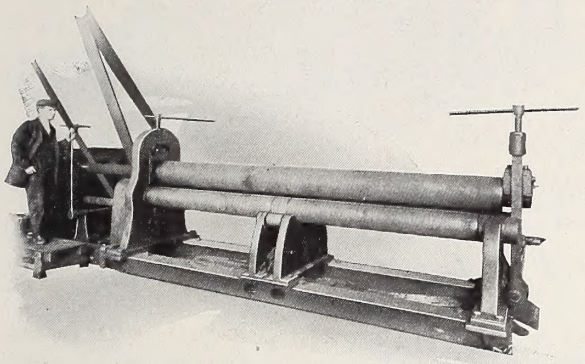


Special Heavy Milling Machine, at work "facing down" one-half of the gear case of the Sawyer-Massey Gas Tractor.

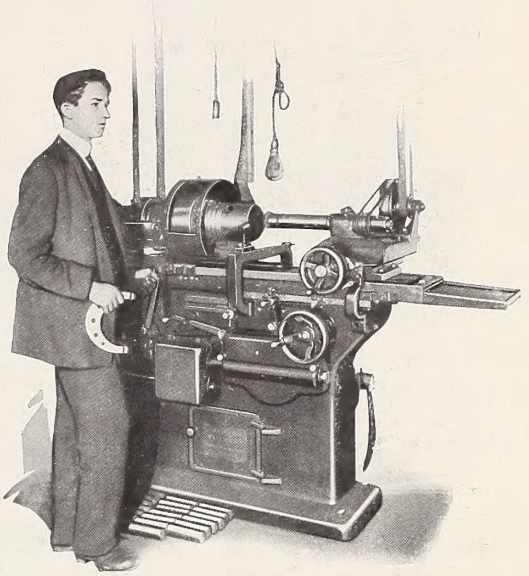
The Profit of Experience

Many farmers first knew of Sawyer-Massey when mere lads at home, these products being used by their fathers and grandfathers. The reputation gained in the service of the elder generations was proof of excellence to the younger, who today use them with gratifying results.

The thoughtful farmer can well consider the advantages that must result from Sawyer-Massey experience in machinery building, reaching back as it does more than three-quarters of a century. All these years Sawyer - Massey has been working out problems, the solution of which meant greatest benefit to the agriculturist. Today, as an outcome of this experience and the solution of problems—often most complex and difficult—Sawyer-Massey machines are doing the farmer's work in every grain growing section of the Dominion and other lands—saving time, labor, and grain, and adding to the profits of the producer.

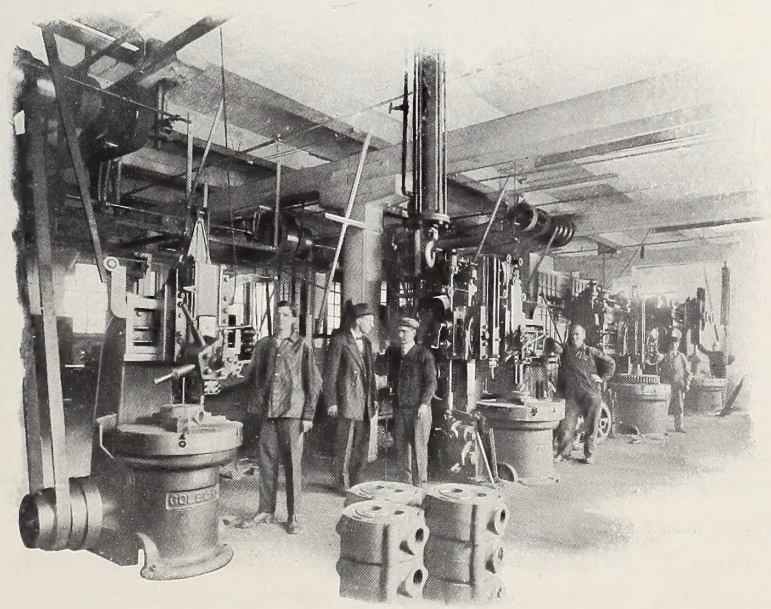


Extra long and heavy rolls used in forming the shells and other parts used in Sawyer-Massey Boilers.



An External Grinder, finishing Sawyer-Massey Gas Tractor pistons to micrometer dimensions.

The advent and perfection of the automobile has given the manufacture of internal combustion engines, particularly those using gasoline as fuel, a strong impetus. Sawyer-Massey engineers have made a close study of every new requirement—every new feature. They have incorporated in the Sawyer-Massey Gold Medal Gas Tractor a gas engine of superior worth, one recommended most heartily as in keeping with other Sawyer-Massey achievements.

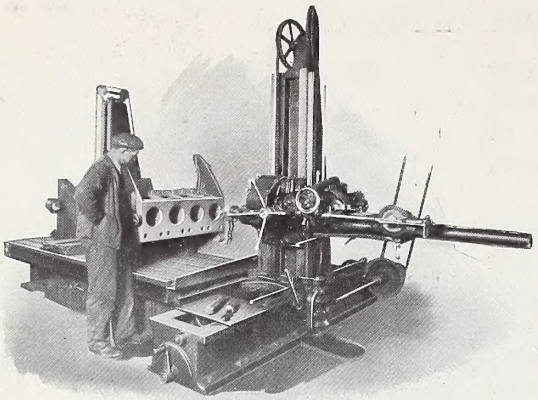


A few of the many Boring Mills used on Gas Tractor Work in Sawyer-Massey Factory.

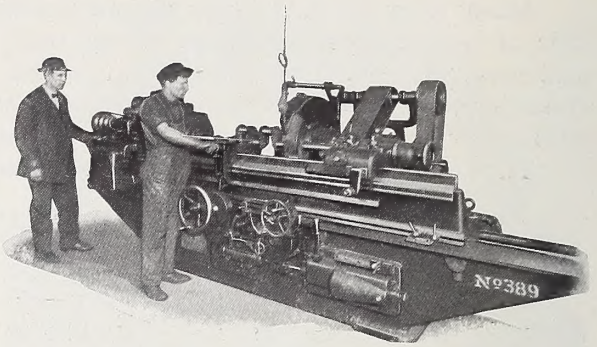
Conditions Studied Constantly

Sawyer-Massey fully realizes that to provide machinery which meets the requirements of the farmers and threshermen, it is necessary to keep closely in touch with the agricultural and industrial conditions of each locality. To this end Sawyer-Massey travellers—trained men constantly in the field—report conditions as they find them. Their reports, in conjunction with those supplied by resident representatives, keep the factory management well posted. In this way, Sawyer-Massey is able at all times to treat all problems that may arise most intelligently, and to better proceed to solve them to the satisfaction and profit of friends and patrons.

SAWYER MASSEY



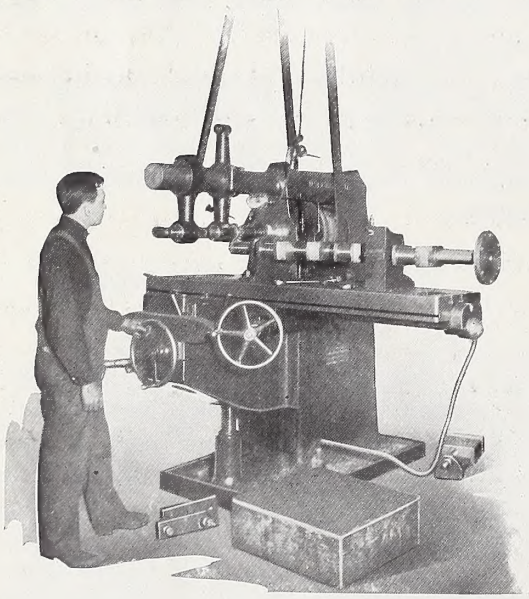
Universal Boring and Milling Machine, at work on Sawyer-Massey Gas Engine base.



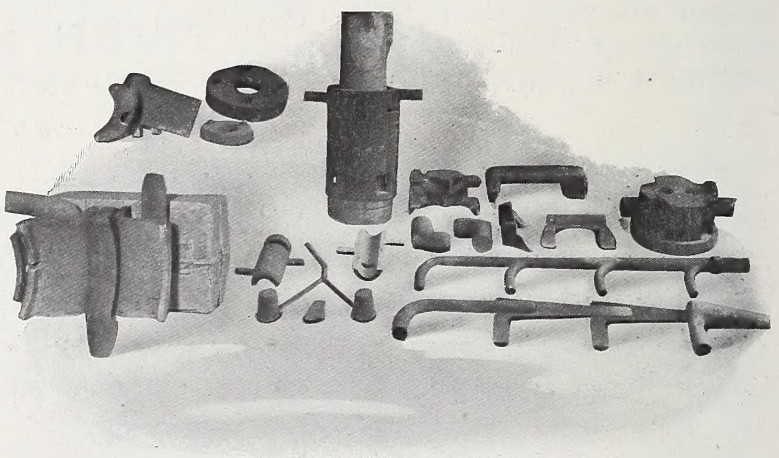
A Grinder which turns out the 4-Cylinder Crank Shafts of Sawyer-Massey Gas Tractor, exactly the same to within micrometer measurements.

Unequalled Shipping Facilities

Sawyer-Massey factories being located at Hamilton, the shipping facilities are unsurpassed. But to even better serve the great western and export trade, branch offices and warehouses are maintained at Winnipeg, Regina, Calgary, and Buenos Aires, Argentina, South America, where full lines of Sawyer-Massey machinery and supplies are carried. Distributing stations are also being established at other principal shipping points in the western provinces.

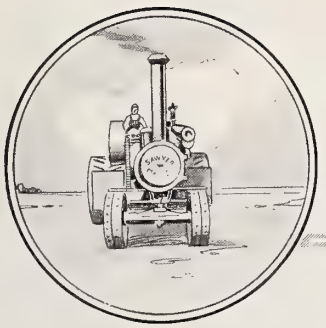


Special Milling Machine cutting the key-ways in a crankshaft for the Sawyer-Massey Gas Tractor.



Difficult Cores used on Steam and Gasoline Engine Cylinders and other parts, all made from Silica sand.

Thus the promptest shipments are always possible, and the quickest, most desirable service given our customers in every way. Outfits and repair parts, as well as accessories of all kinds, can be shipped out from the nearest branch on practically a minute's notice.



STEAM TRACTION ENGINES

The Efficiency of Sawyer-Massey Tractors

The Traction Engine, gas as well as steam, has played a very important part in the progress and development of the Great Canadian West. It has been a marked and consistent factor in the remarkable agricultural transformation that has taken place within the past few years, and which is still under way. New and larger fields for the farmer have been opened to supply new and increasing markets. Extensive farming on a practical footing has been achieved largely through its assistance.

As pioneer builders of traction engines, we can justly claim credit for doing our part in setting the standard of engine efficiency. Our experience, reaching over the years, an established policy in the use of only the best materials and the employment of skilled labor, has made Sawyer-Massey products the standard of quality and efficiency wherever engines are used. These engines fully conform to Government requirements as set forth in the regulations adopted to protect the purchaser against inferior work on the part of the engine manufacturer. More than this, they possess features and improvements, unknown to other makes, that place the Sawyer-Massey Engines distinctly in a class by themselves. They fully and satisfactorily meet the requirements of farmers throughout Canada and other lands, regardless of location or the conditions to which they are subjected in the performance of service.

While the approval and endorsement of users everywhere is to us a most acceptable recognition of our achievements in building steam traction engines, we have from time to time participated in contests, international in scope, in which the superiority of our engines has been demonstrated. A careful reading of the pages which follow will make clear to you the reasons **why Sawyer-Massey Steam Tractors use fuel and water economically, why they are easy steamers, how they are able to do more work and for a longer term of years than engines built with less painstaking care.** Special contests have only confirmed the facts that are demonstrated day after day by hundreds of users of Sawyer-Massey Machinery.

A Sawyer-Massey Engine—A Profitable Investment

That Sawyer-Massey Engines have best met the requirements of those engaged in extensive farming in various parts of Canada, is the best reason why you should buy a Sawyer-Massey.

The practical man wants positive results. He does not care to experiment. In purchasing a Sawyer-Massey Engine you share in the benefits of more than 77 years' experience in machine building. You are sure of securing a machine built along correct lines, of the most approved design, from the very best materials, put together by trained workmen whose joy in their work comes from a careful observance of our standard of workmanship.

A Sawyer-Massey Engine—A Profitable Investment—Continued

Those who build Sawyer-Massey Engines know the requirements of users, and the conditions that confront them. They build for quality, knowing that this is the foundation of service and satisfaction.

While this catalogue aims to give a good description of the Sawyer-Massey Engine, and to show how it surpasses others in many ways, it is, of course, better for the prospective buyer to see it in actual operation.

Our engines are in such general use that there is, doubtless, one or more in your immediate neighborhood. If you will drop us a line we will gladly tell you where you may witness a demonstration, and supply prices or any other information you may wish.

Sawyer-Massey Portable Engines

The Sawyer-Massey Portable Engines are built in 30 and 51 horse-power sizes, and are designed for running portable saw mills or an ordinary-sized complete threshing outfit, or for light stationary work.

They are easily handled by a team of horses and are particularly adapted for rough country. They can be conveniently mounted on sleighs for winter work. Hub castings to go on the rear axles and bolt to runners can be furnished for this service when specified.

The Boilers used with these engines have been approved by both the Alberta and Saskatchewan Government Boiler Inspection Departments. They are simple in construction, and can be furnished with a balance valve if desired. They are fitted with two injectors, or a power pump and one injector. Coal, wood or straw can be used for firing, and straw-burning attachments are furnished on application. The wheels are made of steel.

These engines are specially adapted to meet the requirements of farmers who desire power at any season of the year. They do not require an expert to operate. In mechanical construction they are given the same attention and are in every way as well built as any Sawyer-Massey engine. All brackets which have to withstand strain are of steel, and are securely riveted to the boiler with caulking strips between them and the boiler.

Every detail has been scientifically and carefully worked out, with the idea of making this a simple, plain and serviceable engine that, with proper care, should continue in service for years without expense for repairs.

Specifications of 30 Horse-Power Portable

ENGINE—7 x 10-inch cylinder, Simple.

BOILER BARREL—Diameter, 26 inches.

FIRE-BOX—Length, 38 inches; width, 21½ inches; height, 30 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—32 tubes 2-inch diameter, 79½ inches long.

HEATING SURFACE OF BOILER—134.3 square feet, above grates.

GRATE AREA—5.6 square feet.

STEAM PRESSURE—150 pounds per square inch.

FLY-WHEEL—Diameter, 40 inches; face, 9 inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 40 inches; width, 7 inches.

REAR WHEELS—Diameter, 52 inches; width, 7 inches.

WIDTH—Extreme width of engine is 67 inches.

HEIGHT—Height to top of stack is 10 feet.

WHEEL-BASE—Distance between axles is 9 feet.

WEIGHT—With boiler empty, approximately 6,200 pounds.

Specifications of 51 Horse-Power Portable

ENGINE—8 x 10-inch cylinder, Simple.

BOILER BARREL—Diameter, 28¼ inches.

FIRE-BOX—Length, 39½ inches; width, 24½ inches; height, 33 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—39 tubes 2-inch diameter, 82 inches long.

HEATING SURFACE OF BOILER — 166 square feet, above grates.

GRATE AREA—6.75 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY-WHEEL—Diameter, 40 inches; face, 9½ inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 40 inches; width, 10 inches.

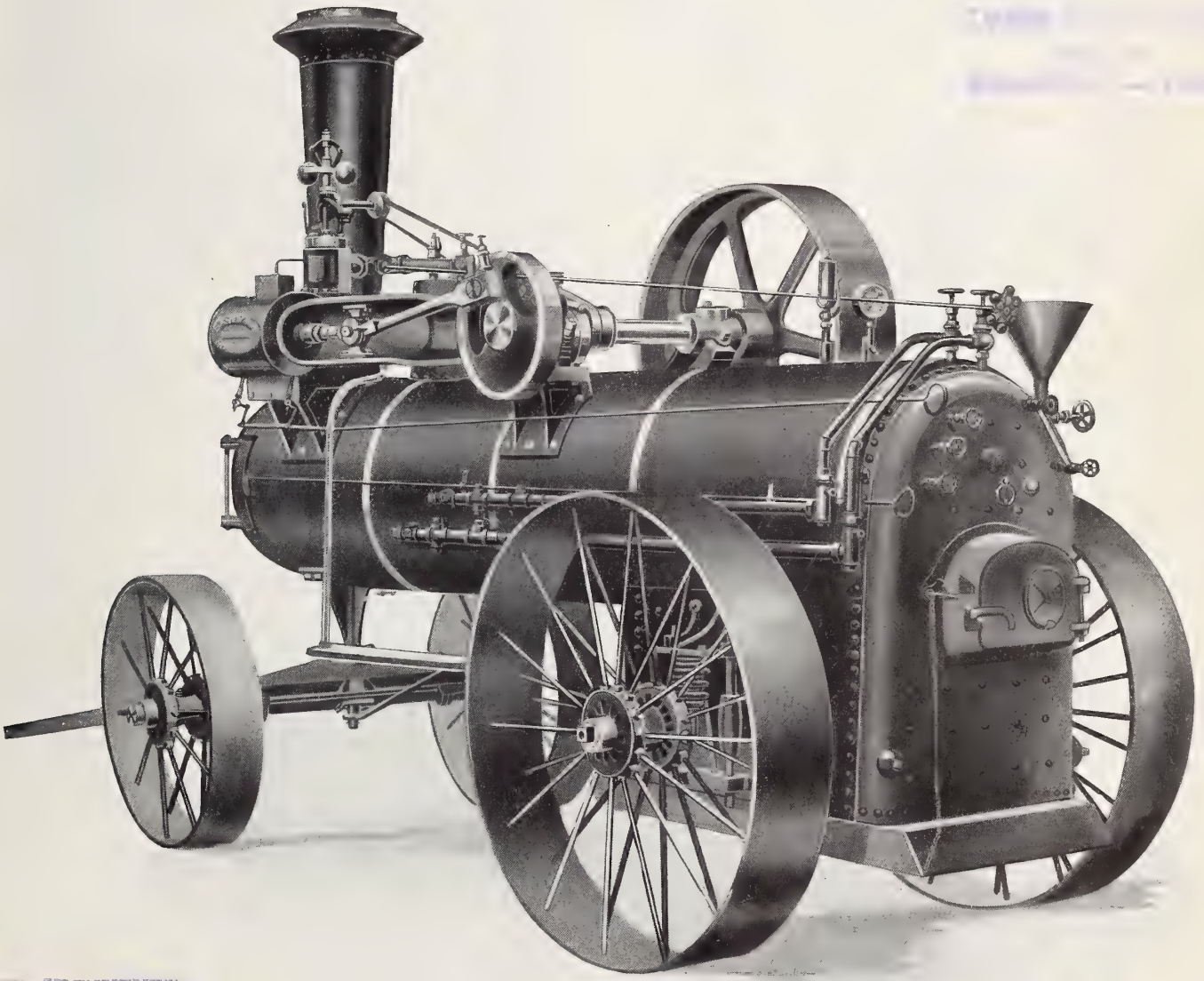
REAR WHEELS—Diameter, 52 inches; width, 12 inches.

WIDTH—Extreme width of engine is 6 feet 7 inches.

HEIGHT—Height to top of stack is 10 feet 6 inches.

WHEEL-BASE—Distance between axles is 9 feet 2 inches.

WEIGHT—With boiler empty, approximately 8,000 pounds.



Sawyer-Massey 30 and 51 Horse-Power Portable Engine

Sawyer-Massey Side-Mounted Engines

The Sawyer-Massey Class "C" Side-Mounted Steam Tractors are built in 51 and 60 horse-power sizes. These are the first engines of the size built to pass Government inspection in both Ontario and Alberta. They conform in every way to the most exacting Government requirements.

The frame supporting the centre shaft is in turn supported by a steel truss attached to a steel "T" bar, which is securely riveted to the boiler. This method eliminates the heavy cast iron brackets previously used.

The boiler is reinforced at the point where the axle bracket is attached. All brackets supporting the engine are riveted to the boiler, making them tight and strong and preventing the possibility of leaking at the studs or bolts, from vibration of the engine and its parts.

The steering roller is solid, the same as used on heavy duty engines. A larger worm gear and wheel is used.

Specifications of 51 Horse-Power Tractor

ENGINE—8 x 10-inch cylinder, Simple.

BOILER BARREL—Diameter, 28¼ inches.

FIRE-BOX—Length, 39½ inches; width, 24½ inches; height, 33 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—39 tubes 2-inch inside diameter, 82 inches long.

HEATING SURFACE OF BOILER — 166 square feet, above grates.

GRATE AREA—6.75 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY WHEELS—Diameter, 40 inches; face, 9½ inches; normal speed, 230 revolutions per minute.

FRONT WHEEL—Diameter, 43 inches; width, 10 inches.

REAR WHEELS—Diameter, 63 inches; width, 24 inches.

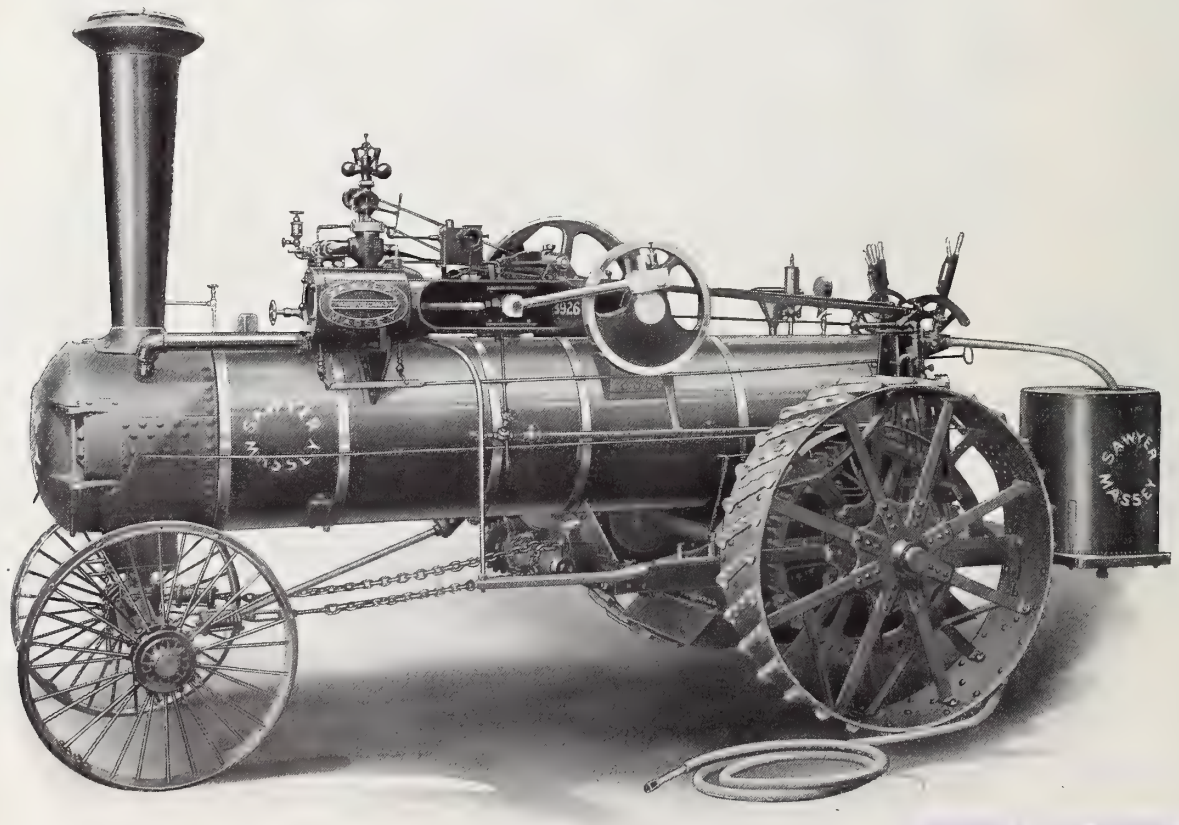
SPEED—2.59 miles per hour.

WIDTH—Extreme width of engine is 8 feet.

HEIGHT—Height to top of Stack is 10 feet 11½ inches.

WHEEL-BASE—Distance between axles is 9 feet 6 inches.

WEIGHT—With boiler and bunkers empty is approximately 16,000 pounds.



Sawyer-Massey 51 Horse-Power Steam Tractor

Sawyer-Massey Side-Mounted Engines—Continued

The boilers are fully described on pages 24 and 25. There is no cast iron used in the construction of any Sawyer-Massey boiler.

The tubes are 96 inches long, the longest used in any engines of the size. This length has been determined by experience to be the best for eliminating sparks, all fuel being burned before it reaches the smoke box.

Specifications of 60 Horse-Power Tractor

ENGINE—9 by 10-inch cylinder, Simple.

BOILER BARREL—Diameter, 30⅝ inches.

FIRE-BOX—Length, 41¾ inches; width, 25¼ inches; height 37 inches: Stay-Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛ inch steel through-stays with 1¼ inch upset ends support the front and rear heads.

TUBES—44 tubes 2-inch diameter, 96 inches long.

HEATING SURFACE OF BOILER—224 square feet, above grates.

GRATE AREA— 7 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY-WHEEL—Diameter, 40 inches; face, 9½ inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 43 inches; width, 12 inches.

REAR WHEELS—Diameter, 63 inches; face, 24 inches regular.

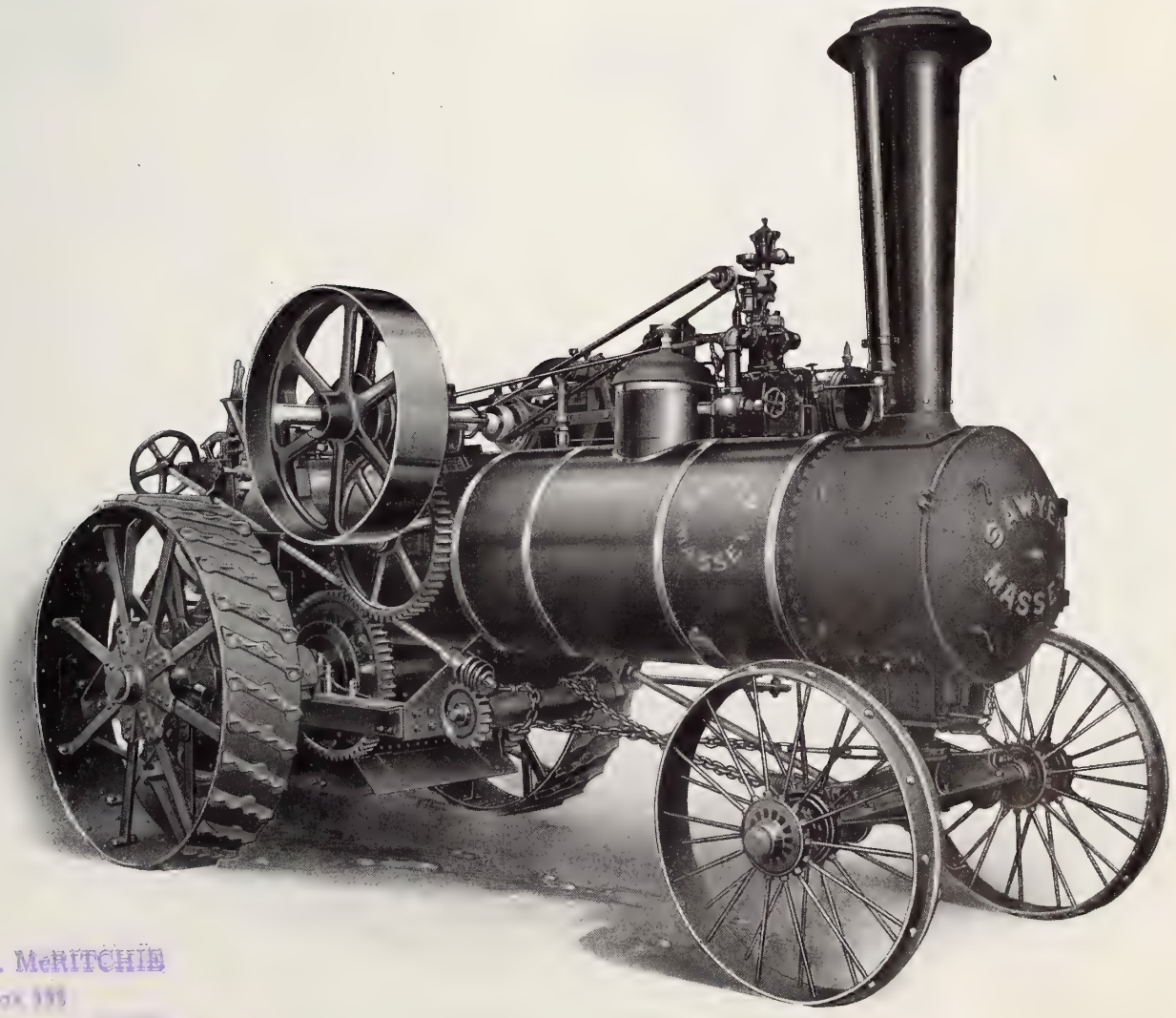
SPEED—2.59 miles per hour.

WIDTH—Extreme width of engine with 24-inch wheels is 98 inches.

HEIGHT—Height to top of stack is 11 feet 10 inches.

WHEEL-BASE—Distance between axles is 10 feet 8 inches.

WEIGHT—With boiler and bunkers empty is approximately 18,000 pounds.



Sawyer-Massey 60 Horse-Power Steam Tractor

LORNE J. McRITCHIE
Box 155
ZEALANDIA — SASK.

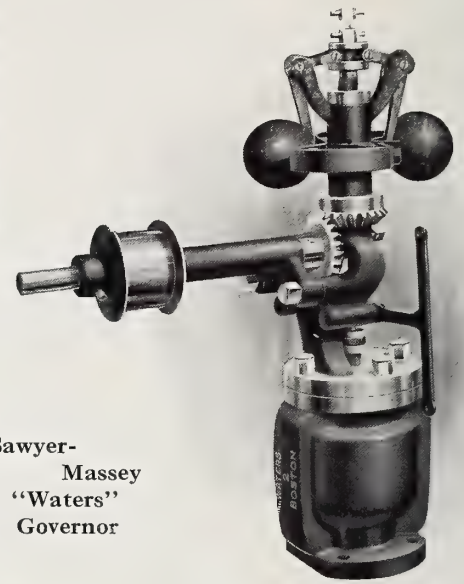
41.27.

Sawyer-Massey Class "C" Rear Mounted Engines

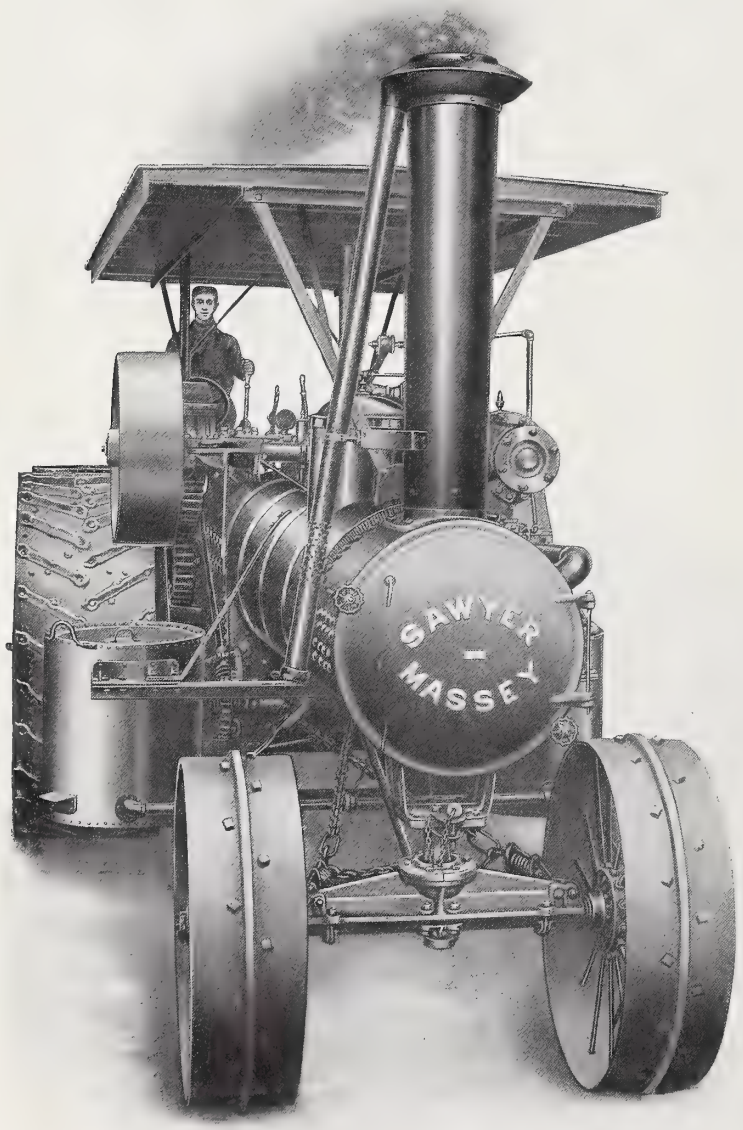
Sawyer-Massey Class "C" Steam Traction Engines are built in 68, 76 and 115 horse-power Simple and 82 and 100 horse-power Compound and are of the rear mounted locomotive type.

These engines are designed for heavy work in plowing or threshing, and are the result of exhaustive field experimenting and testing under every possible condition. They embody every feature which is essential to the greatest efficiency.

GOVERNOR. All Sawyer-Massey Engines are equipped with the "Waters" Governor, which is practically perfect in its operation. The valve seats, four in number, are cast in one piece, which fits the iron body at the ends only, thus providing for free expansion and contraction. This construction insures their always being in line at the same relative distance from each other. It also provides for easy removal if necessary. This Governor will always be found strong, smooth-running and durable, excelling all others in the instantaneous manner in which it automatically responds to the change of load.



Sawyer-Massey "Waters" Governor



Sawyer-Massey Class "C" Compound Traction Engine
Showing compact strength and trim business-like appearance of Pressed Steel Trussed Bracket connecting the front axle and boiler.

ACCESSIBILITY. Every important, or moving, part of these Engines is readily accessible, and can be removed with ordinary tools. All parts are standardized and are interchangeable, making them easy to replace in case of accident.

FUEL. Coal, wood or straw can be used. Straw can be burned without the use of straw grates. This does away with the necessity of replacing grates every two or three years, and gives greater capacity to the fire-box, increasing the body of fire and making it necessary to open straw chute only about one-quarter as often as where grates are used.

FUEL ECONOMY. Because of their freedom from all surplus and unnecessary weight, and the scientific design and construction of the boiler and fire-box, there is the greatest possible economy in the use of fuel, whether coal, wood or straw is used. This statement can be demonstrated with any Sawyer-Massey Engine, and has been substantiated in competitive tests and through years of actual service.

EASY STEAMERS. The Sawyer-Massey Engines have no superior as easy steamers. They have the proper amount of heating surface and plenty of steaming space, and the construction of the fire-box gets the greatest amount of heat out of the fuel. All the expansive force of the steam is utilized in the Compound engines by the tandem cylinders; giving an easy exhaust, which minimizes the danger from fire.

The long smoke-stack makes it possible to get up steam in about two-thirds the time required with a short stack, the draught of which is affected by the rolling currents prevailing close to the earth.

LUBRICATION. Every precaution has been taken to provide for the easy and sure lubrication of all working parts. The importance of this cannot be overestimated. All Sawyer-Massey oilers are of ample size and are protected against dust and dirt.

PERFECT BALANCE. Sawyer-Massey Engines are perfectly balanced, and are designed to have most of the weight rest on the drivers.

Specifications of 68 Horse-Power Tractor

ENGINE—9 x 11-inch cylinder, Simple.

BOILER BARREL—Diameter, 33⅝ inches.

FIRE-BOX—Length, 44 inches; width, 29 inches; height, 37 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—54 tubes 2-inch diameter, 89½ inches long.

HEATING SURFACE OF BOILER—258.12 square feet, above grates.

GRATE AREA—8.75 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY WHEEL—Diameter, 40 inches; face, 12 inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 43 inches; width, 15 inches.

REAR WHEELS—Diameter, 68 inches; face, 30 inches regular. 12-inch extension rims at extra price.

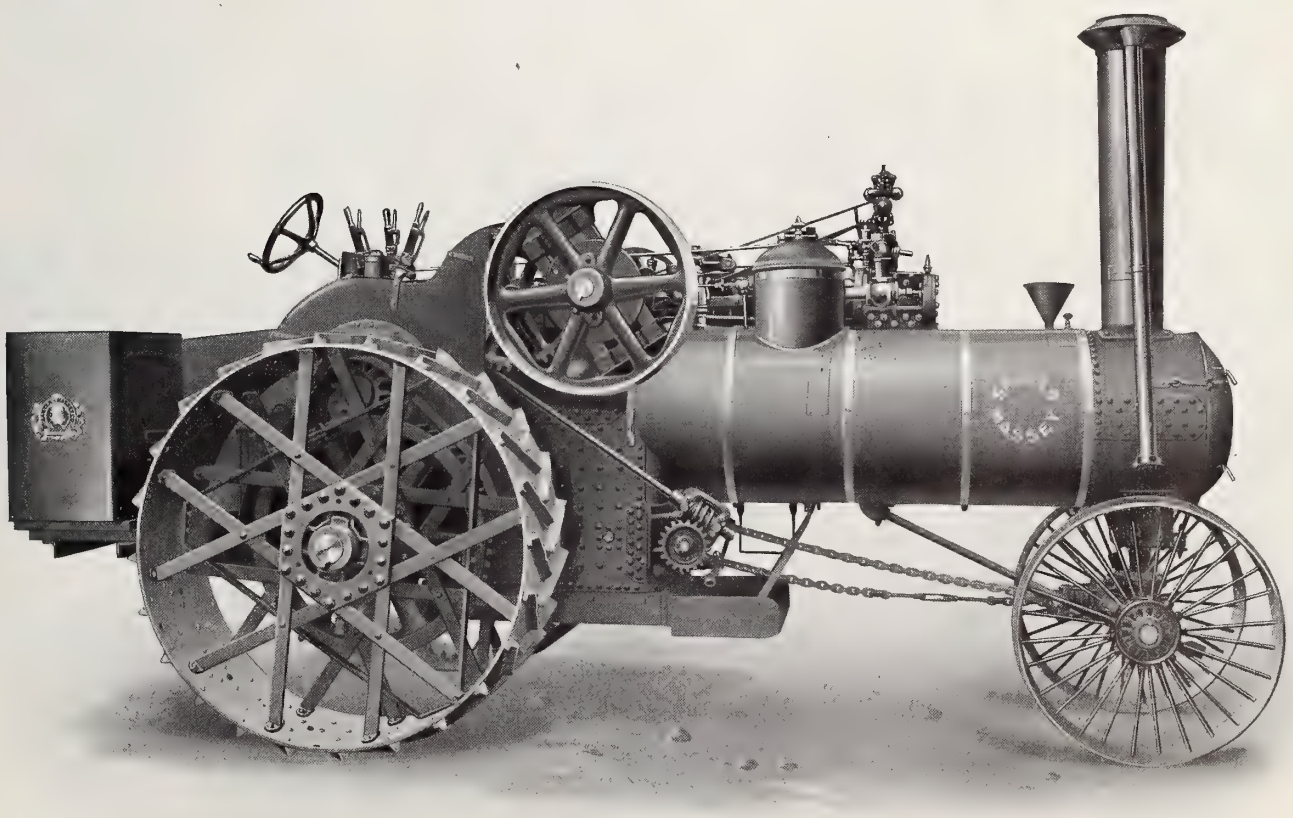
SPEED—2.17 miles per hour.

WIDTH—Extreme width of engine with 30-inch wheels, is 116 inches.

HEIGHT—Height to top of stack is 12 feet.

WHEEL-BASE—Distance between axles is 12 feet 6 inches.

WEIGHT—With boiler and bunkers empty, approximately 23,500 pounds.



Sawyer-Massey 68 Horse-Power Steam Tractor

WATER SUPPLY. For plowing there are three water tanks of liberal capacity, one on the right, one on the left side, and one on rear of Engine. By referring to the illustration on page 17 you will note the convenient manner in which water can be fed into them by siphon and hose attachment. For threshing, only the rear tank is supplied.

FUEL BUNKER The fuel bunker is of large capacity, and conveniently placed at the right of the rear platform. The tool box is in the top of the bunker, and the foot-board is placed just in front of it at the proper height to enable the operator to have an unobstructed view ahead, and handle his engine.

DRAW BAR. For plowing a special draw bar is required. This draw bar is strong, and provided with clevises and holes to meet any requirement.

Specifications of 76 Horse-Power Tractor

ENGINE—9½ x 11-inch cylinder, Simple.

BOILER BARREL—Diameter, 33⅝ inches.

FIRE-BOX—Length, 50 inches; width, 29 inches; height, 37 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—54 tubes 2-inch diameter, 95¼ inches long.

HEATING SURFACE OF BOILER—277.03 square feet, above grates.

GRATE AREA—10.25 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY WHEEL—Diameter, 40 inches; face, 12 inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 48 inches; width, 15 inches.

REAR WHEELS—Diameter, 75 inches; face, 30 inches regular; 12-inch extension rims at extra price.

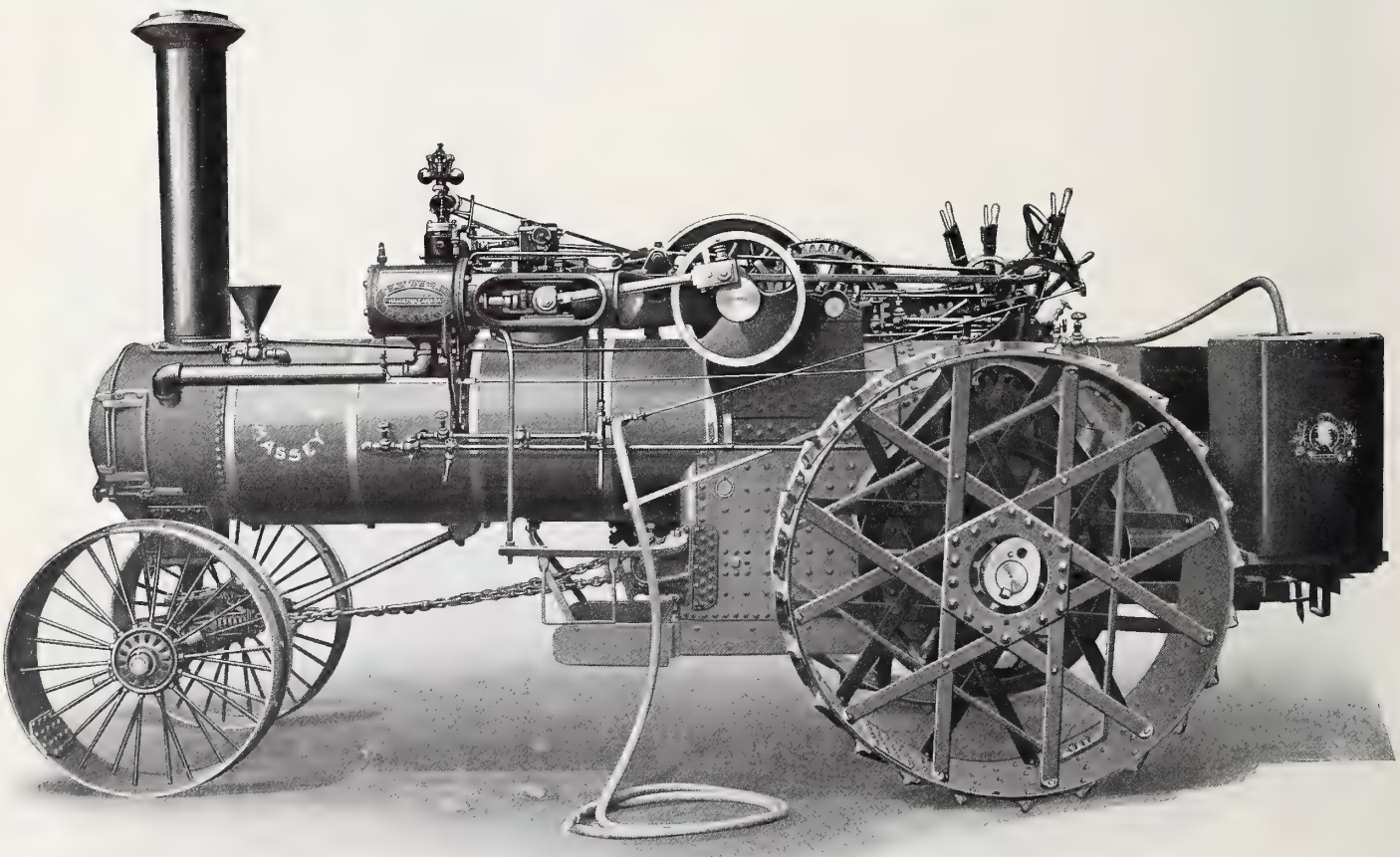
SPEED—2.33 miles per hour.

WIDTH—Extreme width of engine with 30-inch wheels is 118 inches.

HEIGHT—Height to top of stack is 12 feet 2½ inches.

WHEEL-BASE—Distance between axles is 13 feet 6 inches.

WEIGHT—With boiler and bunkers empty is approximately 27,000 pounds.



Sawyer-Massey 76 Horse-Power Steam Tractor
(Equipped for Plowing)

LORNE J. McRITCHIE
Box 138
ZEALANDIA — SASK.

ENGINE. In Class "C" the Engine frame is attached to the boiler by means of steel plates and angles, which are securely riveted to the boiler plates.

REAR AXLE BEARINGS. All rear axle bearings are fourteen inches long, and are made in two halves. The upper half is babbitted the full length, and the lower half is babbitted at both ends, leaving the centre hollow, thus forming an oil pocket. These bearings are removable from the large trundle, which is hollow in the centre and is filled with oil. The oil cannot escape without passing through the entire length of the bearings. This makes a very serviceable bearing, and one that is easy to get at. In addition to the above means of oiling, there are two large grease cups, placed conveniently on the top bearing within easy reach of the operator, who, by a slight turn of the cup, can apply hard grease where most required.

All of the bearings are constructed so that either soft oil or hard grease can be used.

Specifications of 82 Horse-Power Tractor

ENGINE—7½ high pressure x 11 low pressure x 10 inch cylinders, Compound.

BOILER BARREL—Diameter, 33⅝ inches.

FIRE-BOX—Length, 44 inches; width, 29 inches; height, 37 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—54 tubes, 2-inch diameter, 89½ inches long.

HEATING SURFACE OF BOILER—258.12 square feet, above grates.

GRATE AREA—8.75 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY WHEEL—Diameter, 40 inches; face, 12 inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 43 inches; width, 15 inches.

REAR WHEELS—Diameter, 68 inches; face, 30 inches regular; 12-inch extension rims at extra price.

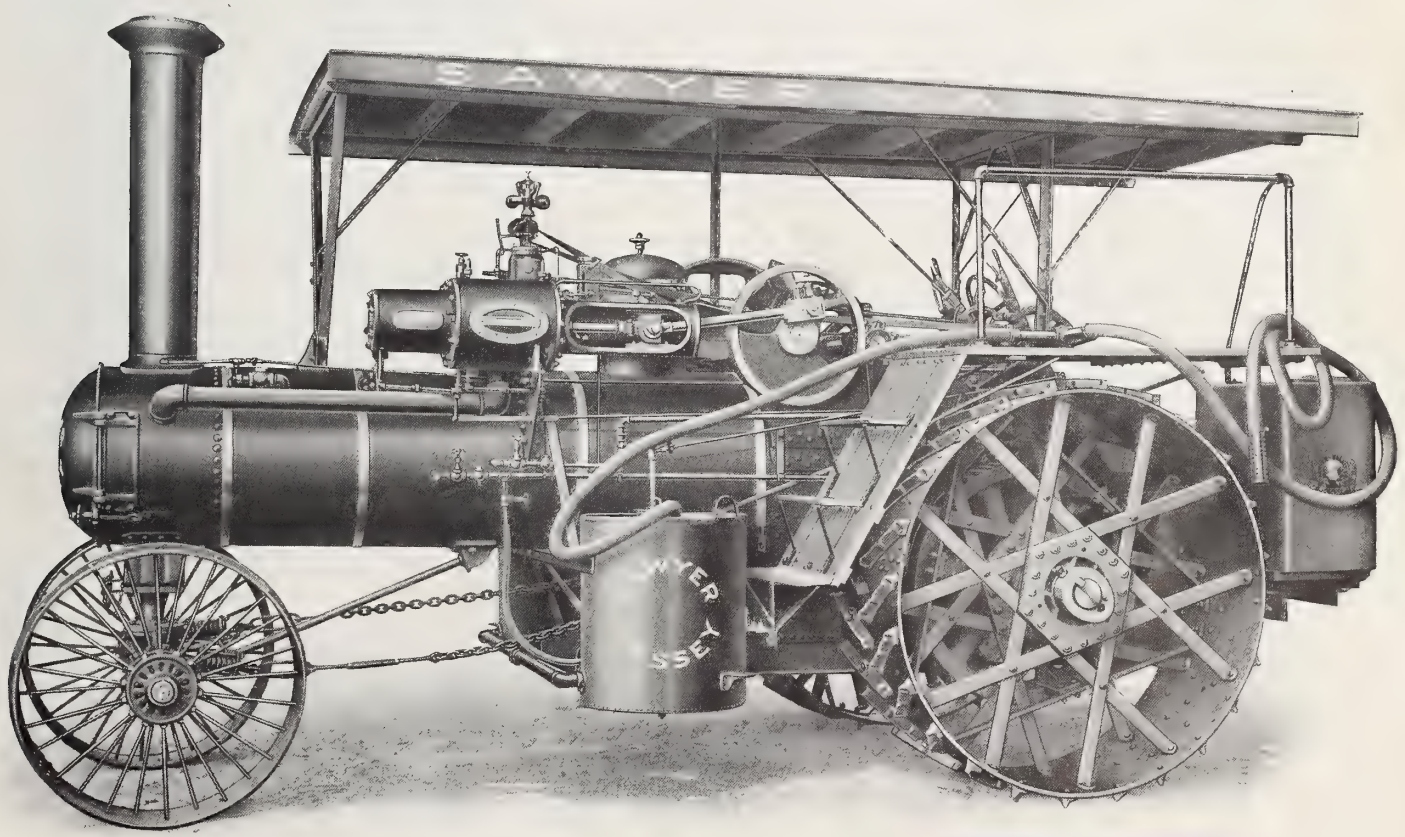
SPEED—2.17 miles per hour.

WIDTH—Extreme width of engine with 30-inch wheels is 116 inches.

HEIGHT—Height to top of stack is 12 feet.

WHEEL-BASE—Distance between axles is 12 feet 6 inches.

WEIGHT—With boiler and bunkers empty is approximately 23,800 pounds.



Sawyer-Massey 82 Horse-Power Steam Tractor
(Equipped for Plowing)

FRICTION CLUTCH. The Sawyer-Massey friction clutch is of a special design, found only on Sawyer-Massey engines. It is not an experiment, its efficiency having been thoroughly proved during the past three seasons. A feature of the design is the large bearing surface the shoes have on the fly wheel. The action is positive and dependable. The steel arms carrying the shoes run through from one shoe to the other and provide sufficient space between shoes and sleeve, where the toggle is connected, to allow right and left-hand screws of a large diameter. This construction also permits the use of large toggle pins with long bearings; all of which means longer service and greater durability of the moving parts. The friction hub is detachable from the gear and can be replaced without incurring the expense of an entire new clutch.

Specifications of 100 Horse-Power Tractor

ENGINE—7¾ high pressure x 12½ low pressure x 11 inch cylinders, Compound.

BOILER BARREL—Diameter, 33⅝ inches.

FIRE-BOX—Length, 50 inches; width, 29 inches; height 37 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—5 1⅛-inch steel through-stays, with 1¼-inch upset ends, support the front and rear heads.

TUBES—54 tubes 2-inch diameter, 95¼ inches long.

HEATING SURFACE OF BOILER—277.03 square feet, above grates.

GRATE AREA—10.25 square feet.

STEAM PRESSURE—175 pounds per square inch.

FLY WHEEL—Diameter, 40 inches; face, 12 inches; normal speed, 230 revolutions per minute.

FRONT WHEELS—Diameter, 48; width, 15.

REAR WHEELS—Diameter, 75 inches; face, 30 inches regular; 12-inch extension rims at extra price.

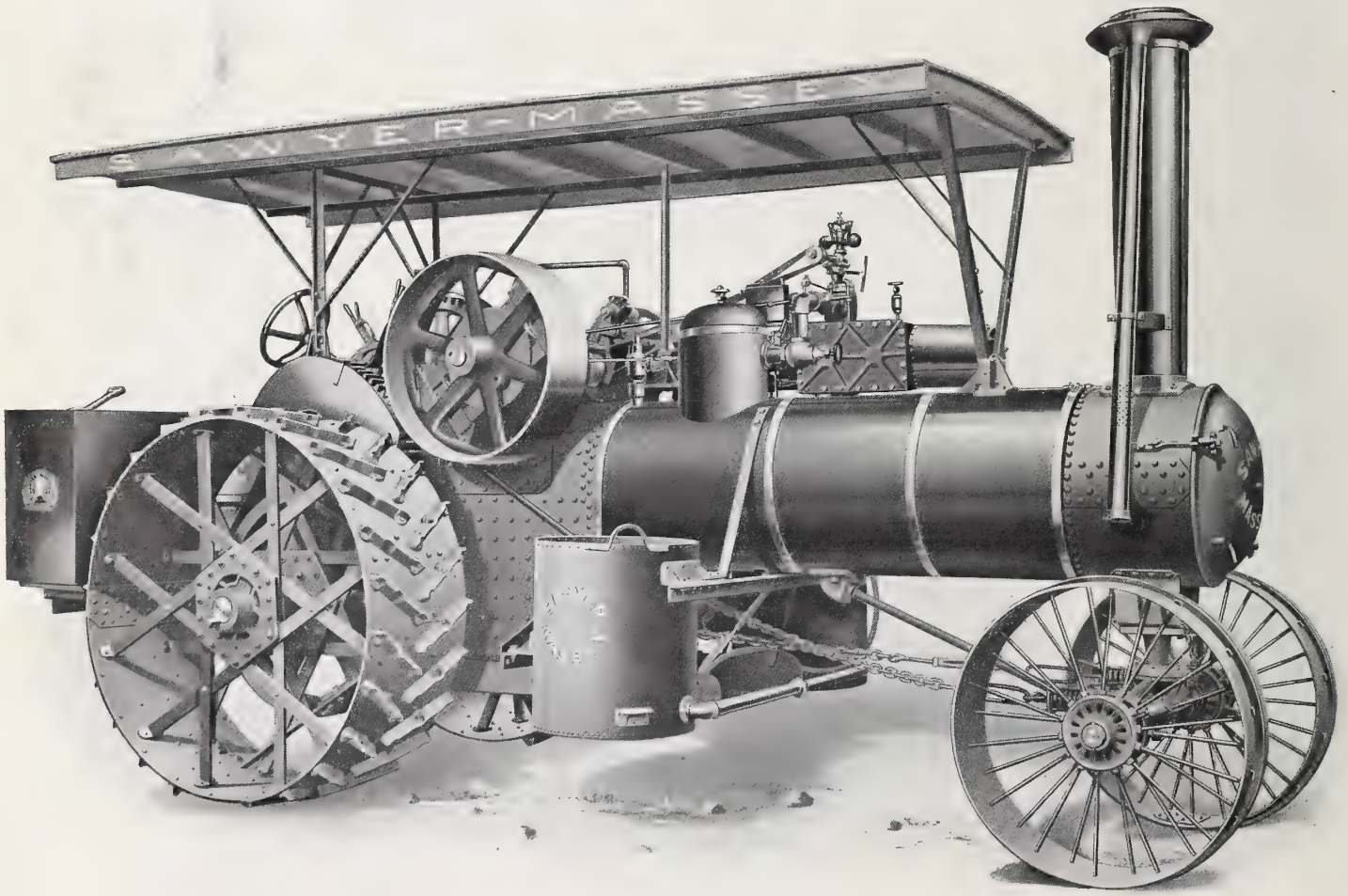
SPEED—2.33 miles per hour.

WIDTH—Extreme width of engine with 30-inch wheels is 118 inches.

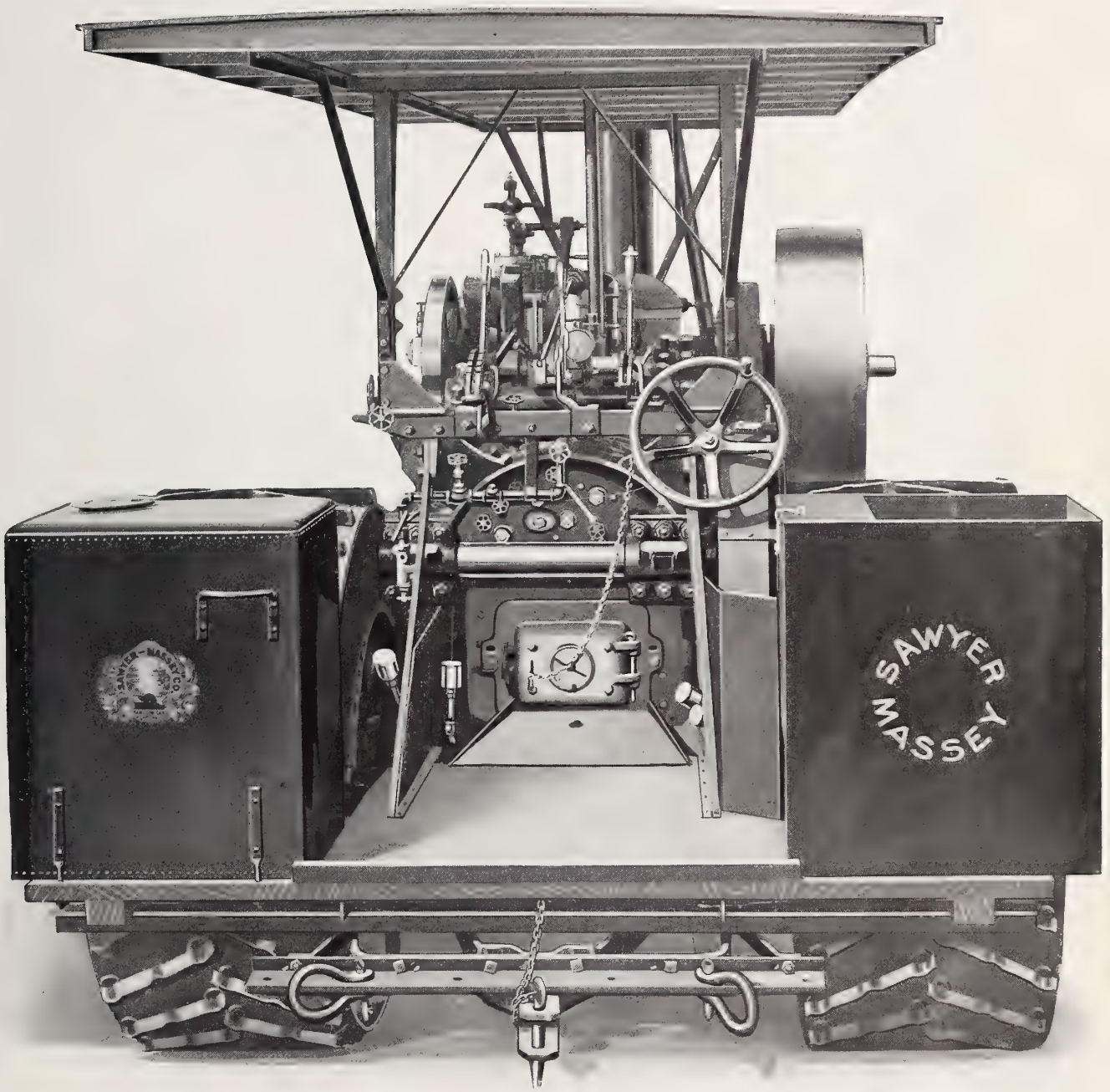
HEIGHT—Height to top of stack is 12 feet 2½ inches.

WHEEL-BASE—Distance between axles is 13 feet 6 inches.

WEIGHT—With boiler and bunkers empty is approximately 28,000 pounds.

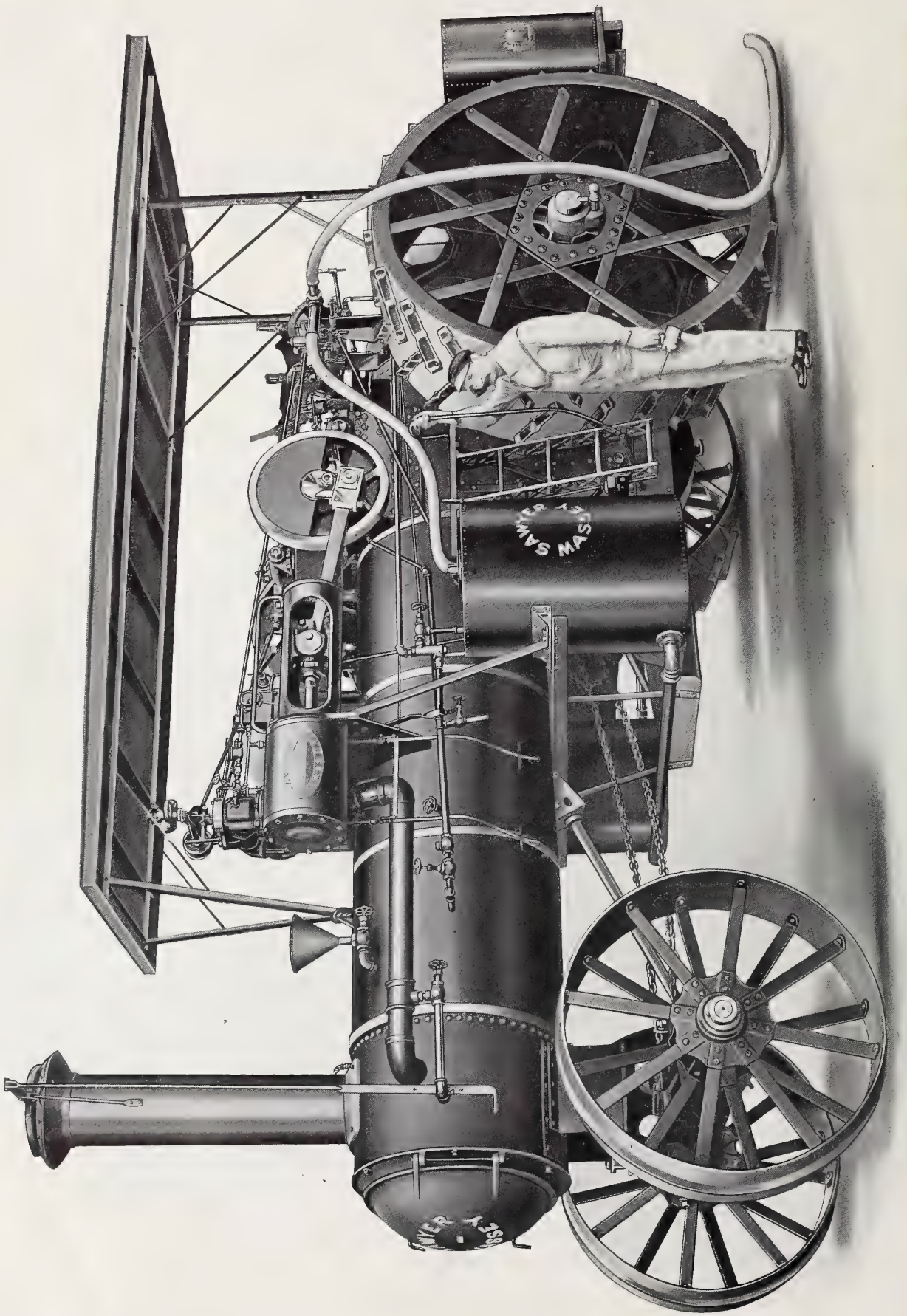


Sawyer-Massey 100 Horse-Power Steam Tractor
(Equipped for Plowing)



Sawyer-Massey Class "C" Compound Engine—Rear View

LORNE J. McRITCHIE
Box 138
ZEALANDIA — SASK.



Sawyer-Massey Class "C" Rear Mounted 115-H.P. Simple Plowing Engine—Left View

LORNE J. McRITCHIE
BOX 13
SASK.

Specifications of 115 Horse-Power Tractor

ENGINE—12 x 14-inch cylinder, Simple

BOILER BARREL—Diameter, 38 inches.

FIRE-BOX—Length, 54 inches; width, 34½ inches; height, 40 inches; Stay Bolts, ⅞ inch.

THROUGH-STAYS—9 1⅛-inch steel through-stays, with 1¼ inch upset ends, support the front and rear heads.

TUBES—70 tubes 2-inch diameter, 102 inches long.

HEATING SURFACE OF BOILER—379 square feet, above grates.

GRATE AREA—12.937 square feet.

STEAM PRESSURE—172 pounds per square inch.

FLY WHEEL—Diameter, 43½ inches; face, 13 inches; normal speed, 220 revolutions per minute.

FRONT WHEELS—Diameter, 54 inches; width, 15 inches.

REAR WHEELS—Diameter, 84 inches; face, 30 inches regular; 12-inch extension rims at extra price.

SPEED—2.36 miles per hour.

WIDTH—Extreme width of engine with 30-inch wheels is 120 inches.

HEIGHT—Height to top of Stack is 12 feet 4 inches.

WHEEL-BASE—Distance between axles is 14 feet 6 inches.

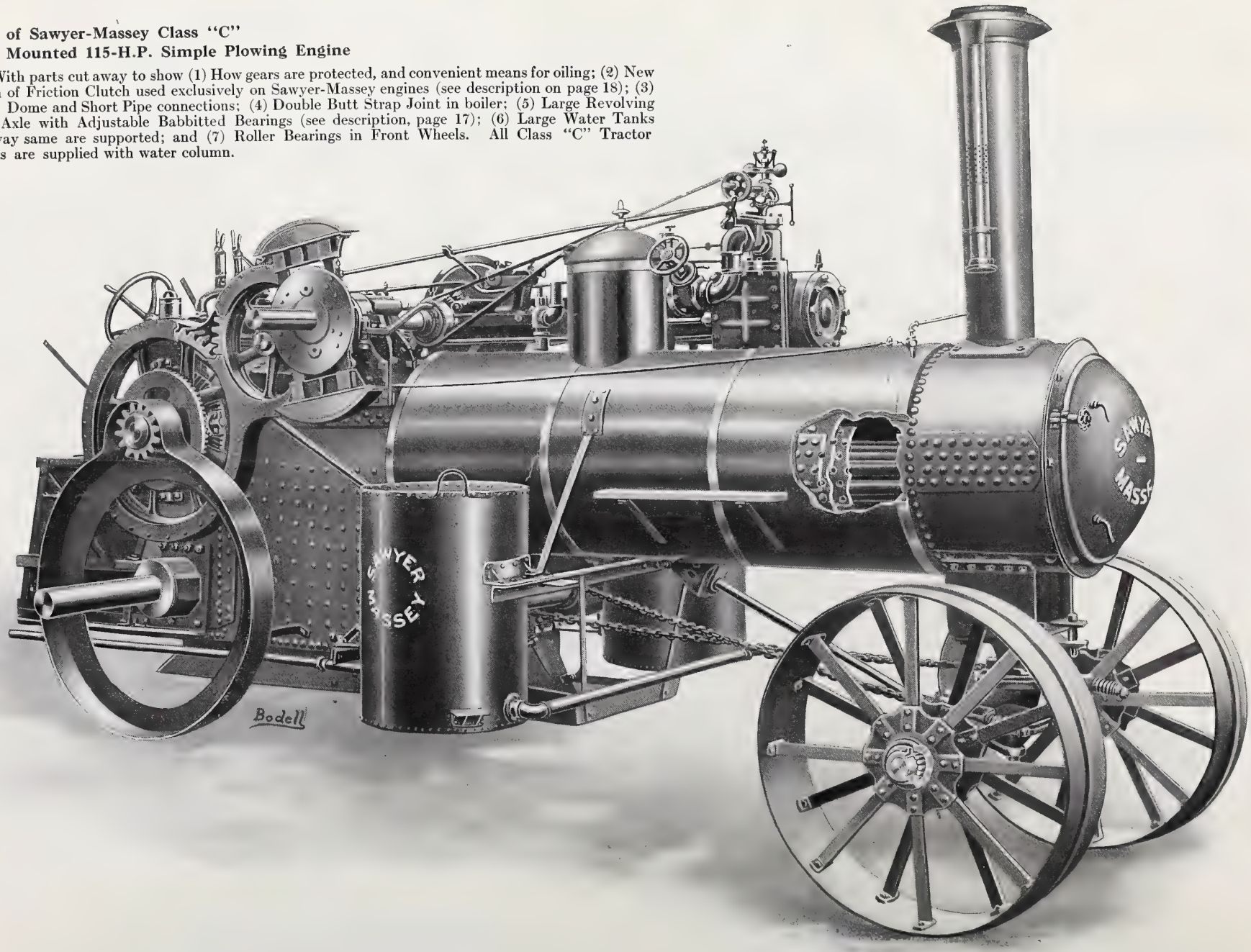
WEIGHT—With boiler and bunkers empty is approximately 35,040 pounds.

Summary of Specifications
Sawyer-Massey Engines and Boilers

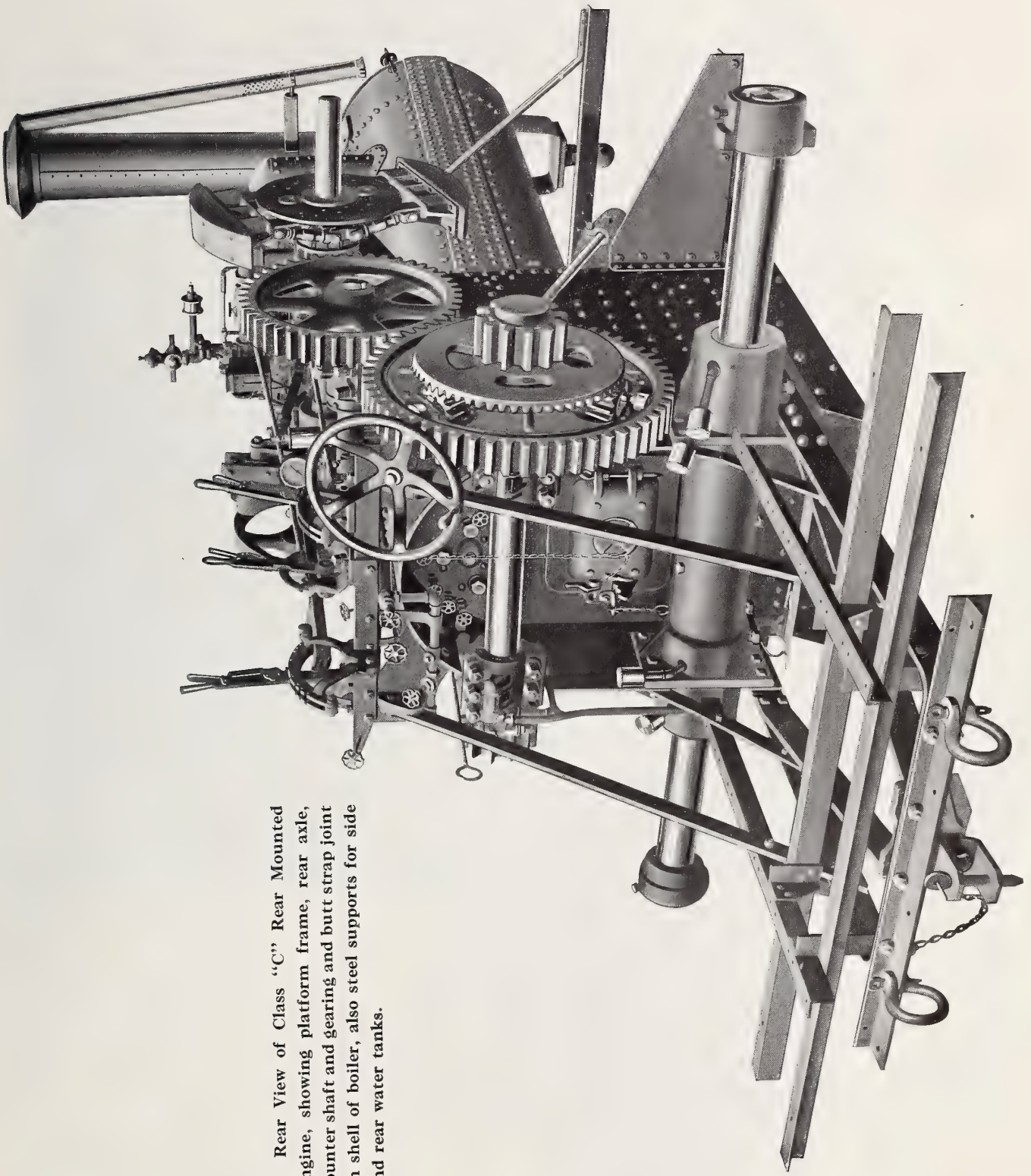
			Cylinder			Boiler.										Fly Wheel				Traction				
						Fire Box			Tubes.											Rear Wheels		Front Wheels		
Number of Engine.	Style of Engine.	Brake Horse-Power.	High Pressure, Ins.	Low Pressure, Ins.	Stroke, Ins.	Length, Ins.	Height, Ins.	Width, Ins.	Number.	Diameter, Ins.	Length, Ins.	Diameter of Waist.	Heating Surface, Sq. Ft.	Grate Area, Sq. Ft.	Steam Pressure, lbs. per Sq. In.	Diameter, Ins.	Face, Ins.	Normal Speed, Rev. per Minute.	Miles per Hour at Normal Speed.	Diameter, Ins.	Face, Ins.	Diameter, Ins.	Face, Ins.	Valve Motion
C 3	Simple Trac.	68	9	..	11	44	37	29	54	2	89.25	33⅝	258.5	8.75	175	40	12	230	2.17	68	30	43	15	S.-M.(Woods)Pat. Rev.Bal.
C 5	Simple Trac.	76	9½	..	11	50	37	29	54	2	95.25	33⅝	277.03	10.25	175	40	12	230	2.33	75	30	48	15	S.-M.(Woods)Pat. Rev.Bal.
C 7	Comp. Trac.	82	7¼	11	10	44	37	29	54	2	89.25	33⅝	258.5	8.75	175	40	12	230	2.17	68	30	43	15	Woolf Reverse Balance.
C 11	Comp. Trac.	100	7¾	12½	11	50	37	29	54	2	95.25	33⅝	277.03	10.25	175	40	12	230	2.33	75	30	48	15	Woolf Reverse Balance.
C 13	Simple Trac.	115	12	..	14	54	42	34½	74	2	102.	38	379.	12.9	172	43½	13	220	2.36	84	30	54	15	S.-M.(Woods)Pat. Rev.Bal.
6⅝	Simple Port.	51	8	..	10	39½	33	24½	39	2	82.	28¼	166.	6.75	175	40	9½	230	..	52	12	40	10	S.-M. Plain Engine.
6⅝	Simple Trac.	51	8	..	10	39½	33	24½	39	2	82.	28¼	166.	6.75	175	40	9½	230	2.59	63	24	43	10	S.-M.(Woods)Pat. Reverse.
7⅞	Simple Trac.	60	9	..	10	42	37	25	44	2	96.	30⅝	224.	7.3	175	40	9½	230	2.59	63	24	43	12	S.-M.(Woods)Pat. Reverse.
3	Simple Port.	30	7	..	10	38	30	21½	32	2	79½.	26	134.3	5.6	150	40	9	230	..	52	7	40	7	S.-M. Plain Engine.

View of Sawyer-Massey Class "C"
Rear Mounted 115-H.P. Simple Plowing Engine

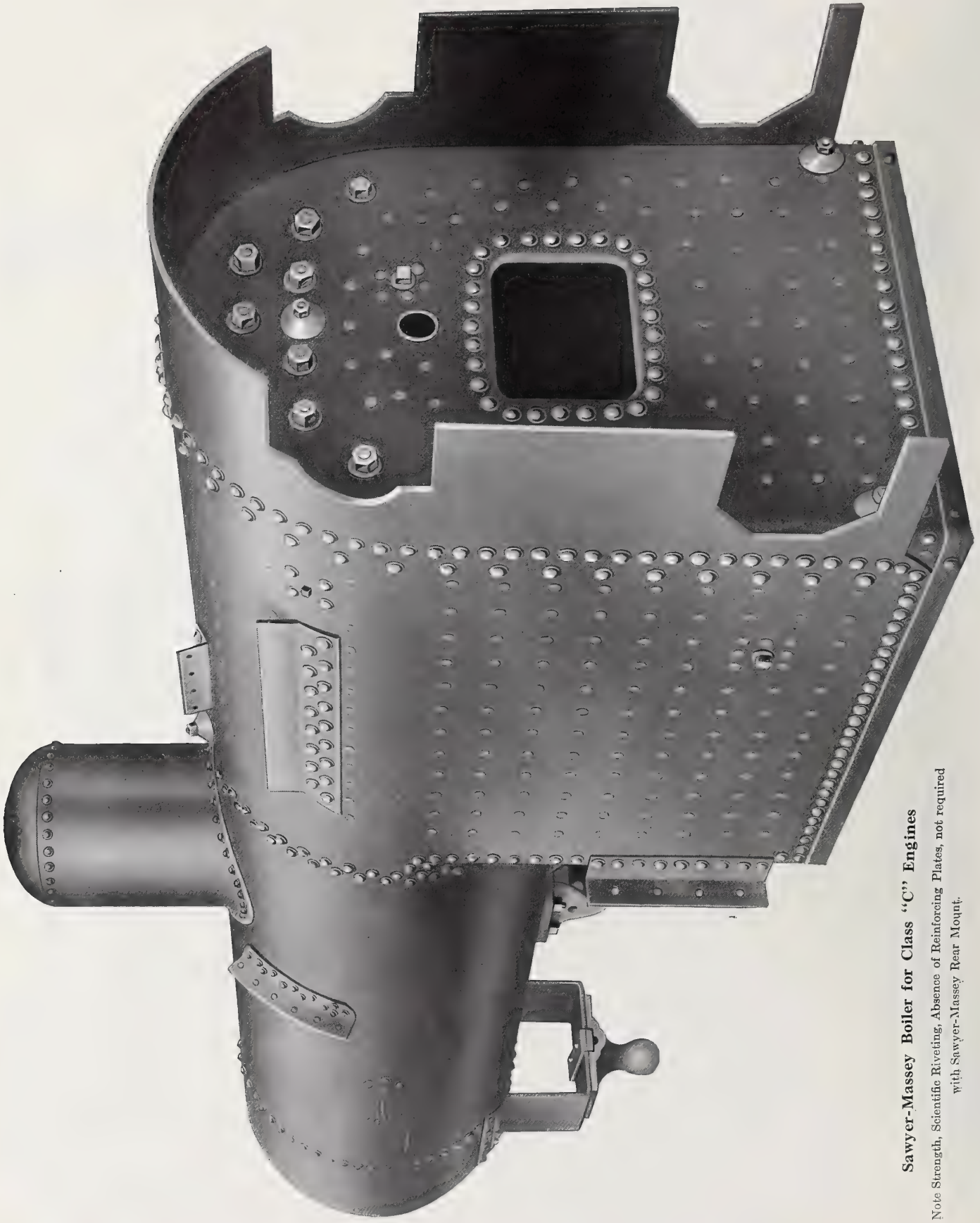
With parts cut away to show (1) How gears are protected, and convenient means for oiling; (2) New design of Friction Clutch used exclusively on Sawyer-Massey engines (see description on page 18); (3) Large Dome and Short Pipe connections; (4) Double Butt Strap Joint in boiler; (5) Large Revolving Rear Axle with Adjustable Babbitted Bearings (see description, page 17); (6) Large Water Tanks and way same are supported; and (7) Roller Bearings in Front Wheels. All Class "C" Tractor Boilers are supplied with water column.



SAWYER MASSEY



Rear View of Class "C" Rear Mounted Engine, showing platform frame, rear axle, counter shaft and gearing and butt strap joint on shell of boiler, also steel supports for side and rear water tanks.



Sawyer-Massey Boiler for Class "C" Engines

Note Strength, Scientific Riveting, Absence of Reinforcing Plates, not required with Sawyer-Massey Rear Mount.

Reliability of Sawyer-Massey Boilers

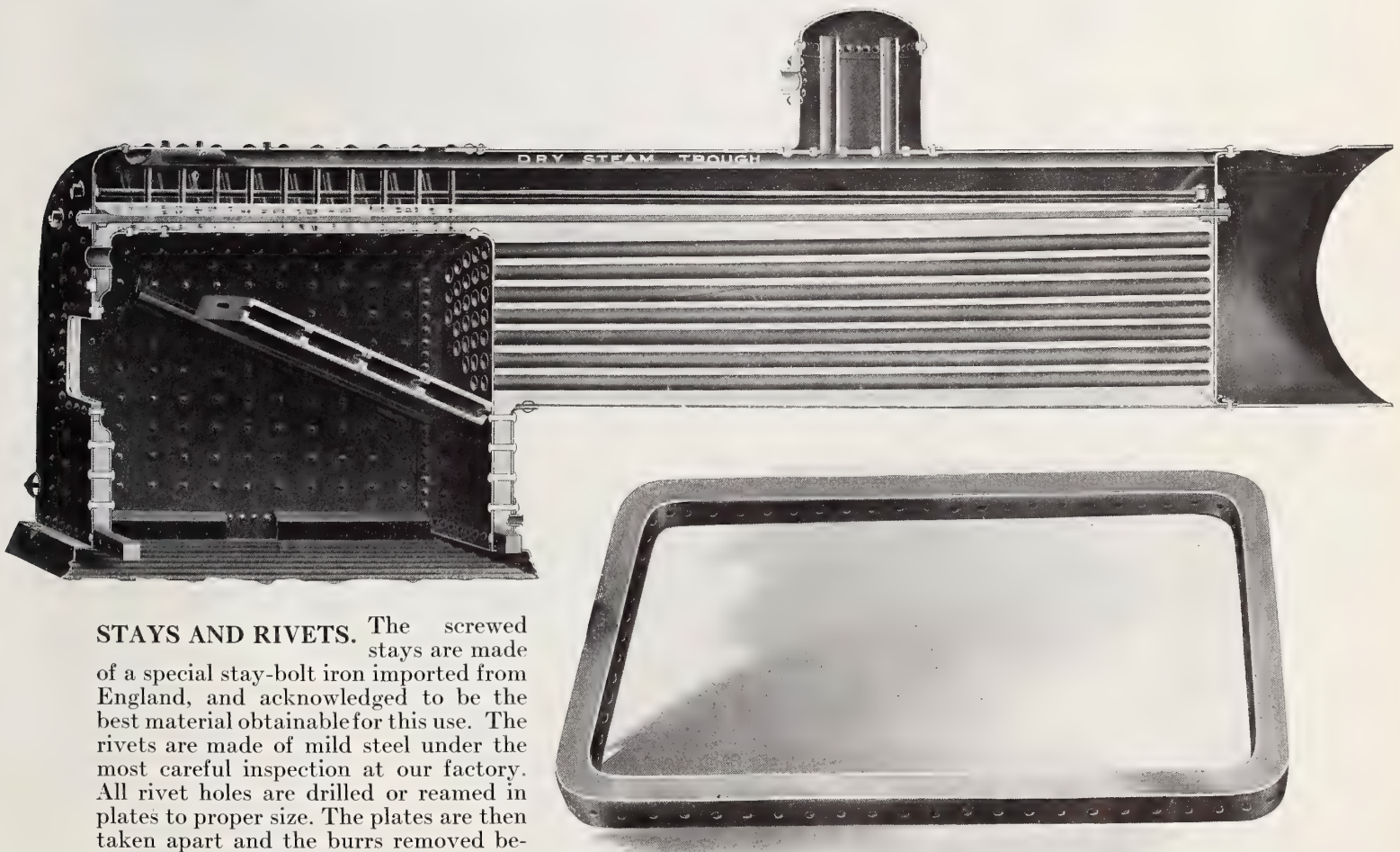
The Boiler is the vital part of an Engine, and in the building of Sawyer-Massey Boilers nothing has been neglected which has any possible bearing on their efficiency and dependability. In design, material and workmanship they meet the governmental inspection requirements of the Provinces of Canada to the fullest extent. **Not only do they comply with the letter of the law, but with its spirit, which is to afford the greatest possible protection to life and property.**

The Boiler supplies the power, and on its efficiency the success of the Engine depends. Sawyer-Massey Boilers have the strength of plate which insures safety, length and arrangement of tubes which insure economy of fuel, the high pressure necessary to secure the maximum of power, and the general all-round stability which insures a maximum of satisfaction to the user. **All our Boilers are built complete in our own factory and under the most careful inspection.**

The Sawyer-Massey Boiler is of the well-known open bottom type, making access to the fire-box convenient for cleaning or repairs. There are no O.G. flanges at the bottom of the fire-box where the plates are riveted together—a cheap method of construction often found in other boilers. All plates on the inside of the Sawyer-Massey fire-box are straight, with a large amount of space between the inner and outer plates. The plates at the bottom are riveted to the fire-box frame, illustrated below. The water space is ample and provides for easy cleaning.

PLATES. The plates are thoroughly tested and inspected. They are of flange quality, best open-hearth steel of 60,000 pounds tensile strength. Each plate is stamped with the quality, tensile strength and name of the maker.

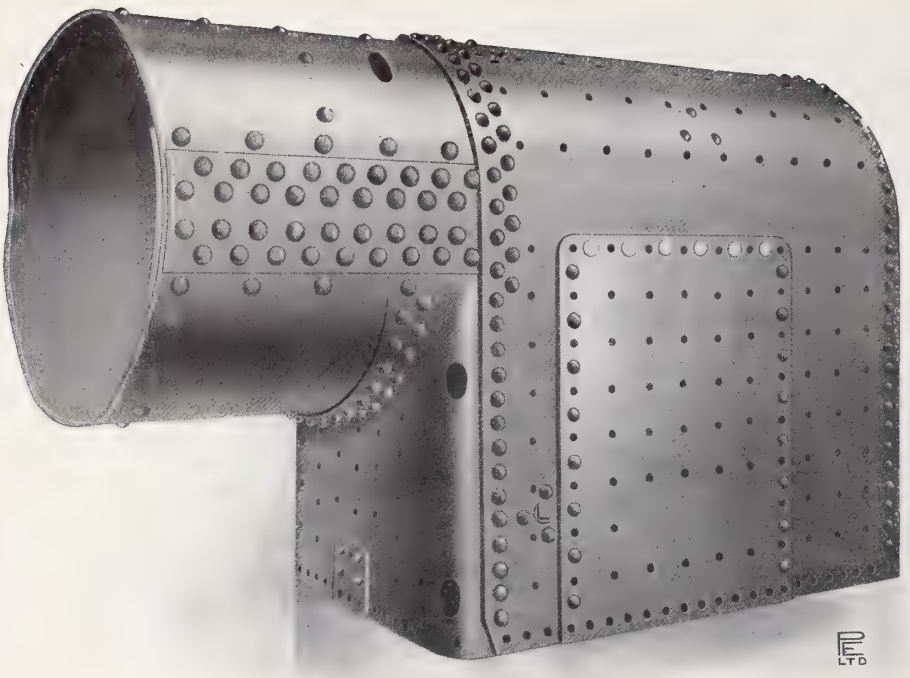
TUBES. Special care is exercised with the tubes, which are smooth, carefully annealed and fitted. They are made by the Spellerized Process. The illustrations on page 29 will give you an idea of the various tests to which the tubes are submitted to prove their ability to stand severest strains. At the fire-box end there is a copper ferrule between each tube and the tube sheet. The tubes are carefully beaded over at both fire-box and smoke-box ends.



STAYS AND RIVETS. The screwed stays are made of a special stay-bolt iron imported from England, and acknowledged to be the best material obtainable for this use. The rivets are made of mild steel under the most careful inspection at our factory. All rivet holes are drilled or reamed in plates to proper size. The plates are then taken apart and the burrs removed before riveting. The hand-hole plates and caps are built of selected material and thoroughly tested, to insure against possible defects. All openings over one-inch pipe tap are reinforced with plates securely riveted to the boiler.

Sawyer-Massey Soft Steel Fire-Box Frame

The fire-box frame is made of steel similar to the boiler plate, and is forged on a special form, or die, which insures uniform dimensions. The material, being similar to the boiler, prevents any trouble from unequal expansion under different conditions of firing.



Sectional View of Sawyer-Massey Boilers

Showing Double Butt Strap, Treble-Riveted Longitudinal Seams, Scientific Riveting.

HEATING SURFACE. The design of these Boilers is such as to give a large area of effective heating surface, and the steam circulation which is necessary in a quick steamer.

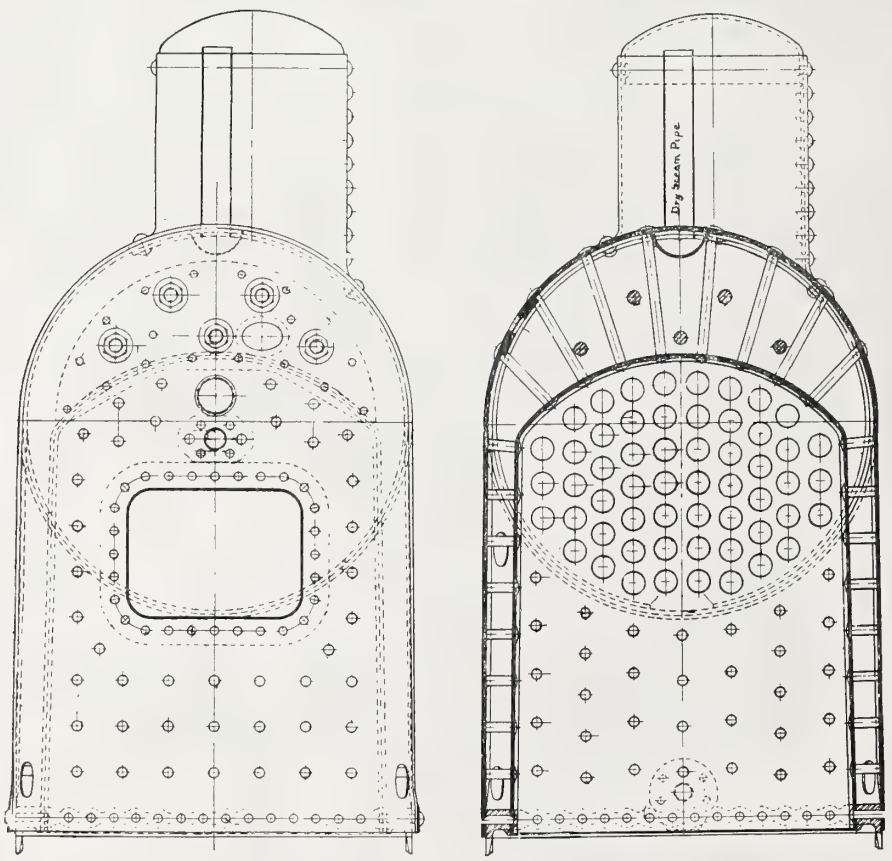
FITTINGS. The fittings are all of the best possible quality, and of approved registered designs. A suitable steam gauge, safety valve of ample capacity, and a fusible plug are located conveniently for the operator.

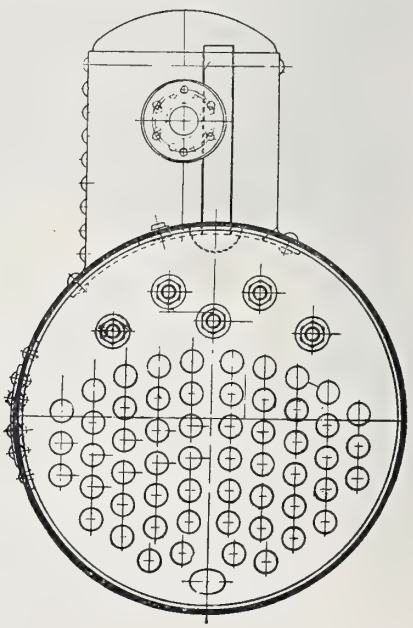
DOME. They are provided with a large dome, which insures an abundant supply of dry steam at all times. There is a short steam pipe connection between the dome and cylinder.

WATER CAPACITY. Sawyer-Massey Boilers have ample water space, and all plugs and hand-holes are arranged so as to make it very convenient to get at the parts of the Boiler that are most likely to accumulate sediment.

FIRE-BOX. Both the fire-box and ash-pan are large and roomy, with suitable openings to allow the ashes to be cleaned out easily.

BOILER TESTS. All Sawyer-MasseyTractor Boilers are carefully tested under a hydrostatic pressure of 275 lbs. per square inch and a steam pressure up to 175 pounds per square inch.





Cross Sectional Views of Sawyer-Massey Boilers

(See Page 27)

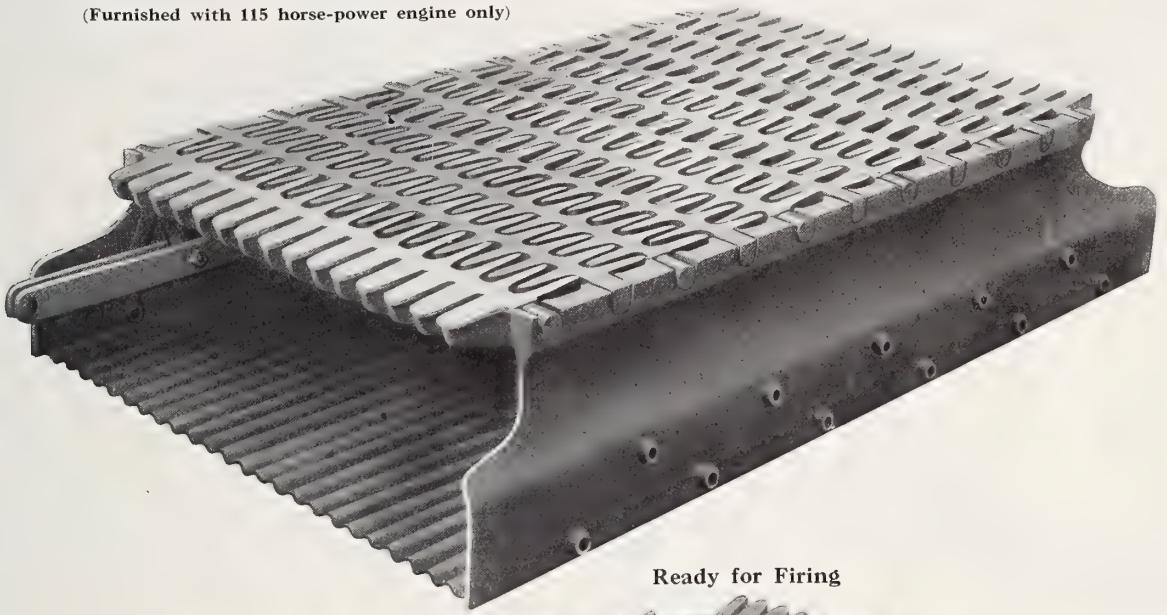
Cross Sectional Views of Sawyer-Massey Boilers

(See Page 26)

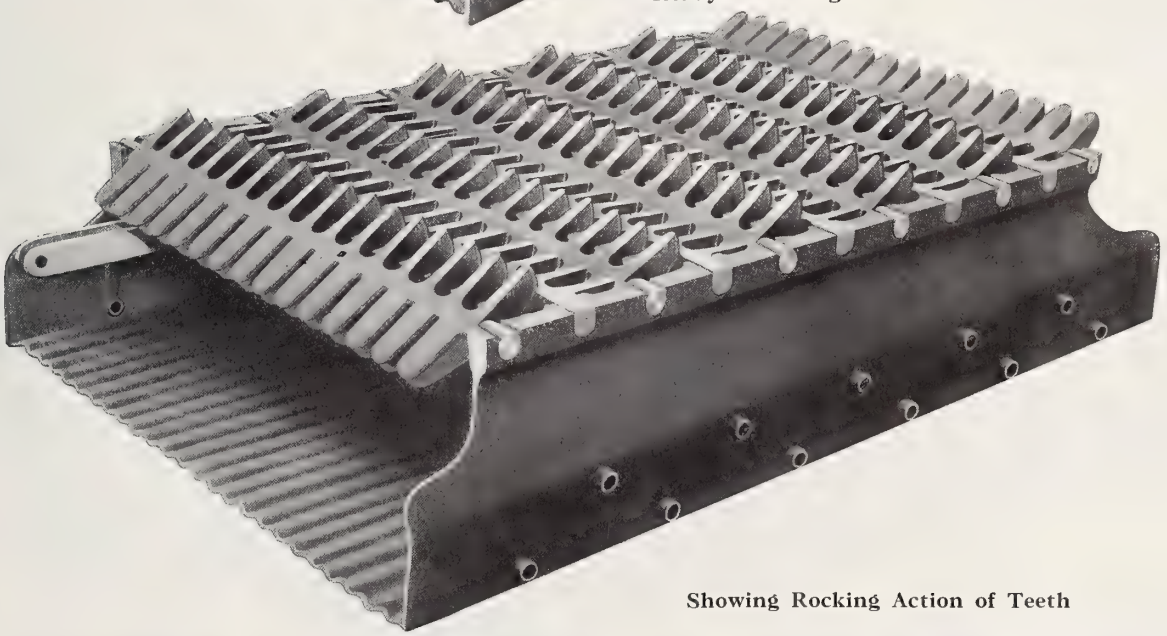
The shell on Sawyer-Massey Boilers is of a diameter to afford sufficient space between the tubes to insure the best circulation and to facilitate cleaning out. The dome is large, and the dry steam pipes are so arranged that it is almost an impossibility to get any water into the dome with the steam. The steam from the boiler is conveyed to the top of the dome by two standard dry steam pipes, either of which is sufficiently large to supply the engine. This insures a constant and abundant amount of dry steam in the dome at all times. The steam pipe leading from the dome to the cylinder of the engine is very short, and is attached to the side of the dome somewhat below the top of the dry pipes, which are inside. This connection is made by means of a large cast steel nozzle, or flange, which is securely riveted to the dome.

Sawyer-Massey Improved Rocking Grates, No. 1

(Furnished with 115 horse-power engine only)



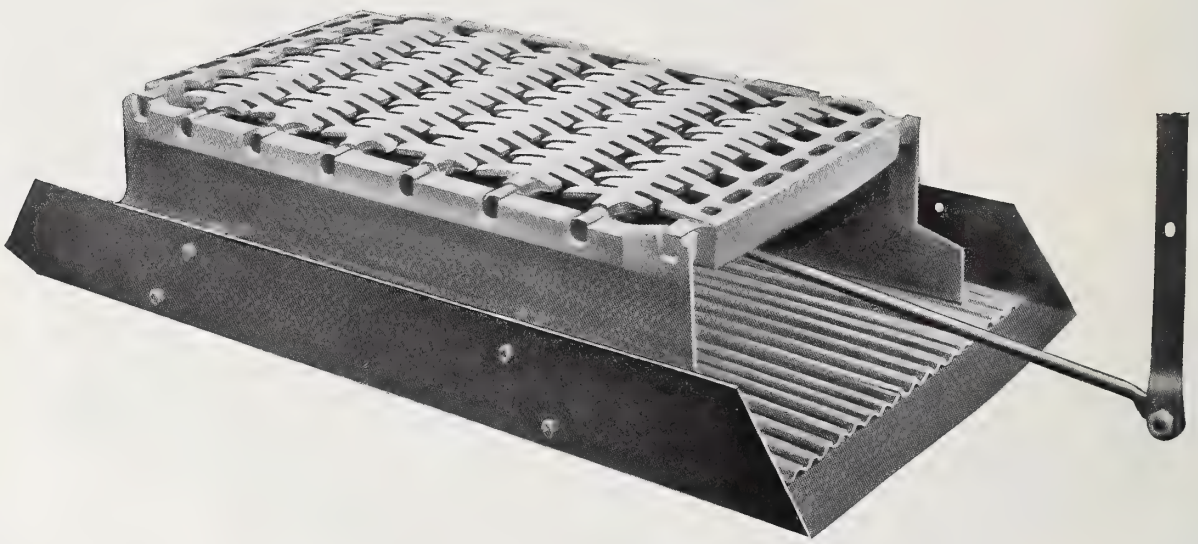
Ready for Firing



Showing Rocking Action of Teeth

The Sawyer-Massey Improved Rocking Grates, No. 2, can be furnished with Class "C" boilers in place of regular stationary grates, when so specified. The illustrations bring out clearly the design which permits free shaking without waste of coal. The shaking lever is conveniently located at the left of the fire-box. The design of teeth and the spacing between have been worked out after careful study. Every other row is stationary, the rocking teeth being peculiarly effective in shaking down the fire evenly and thoroughly. The bolt holes showing in the side walls of the grate are used for bolting the grate to the ash-pan and are designed to leave an ample air space to prevent the ash-pan from overheating. The corrugated bottom serves the same purpose.

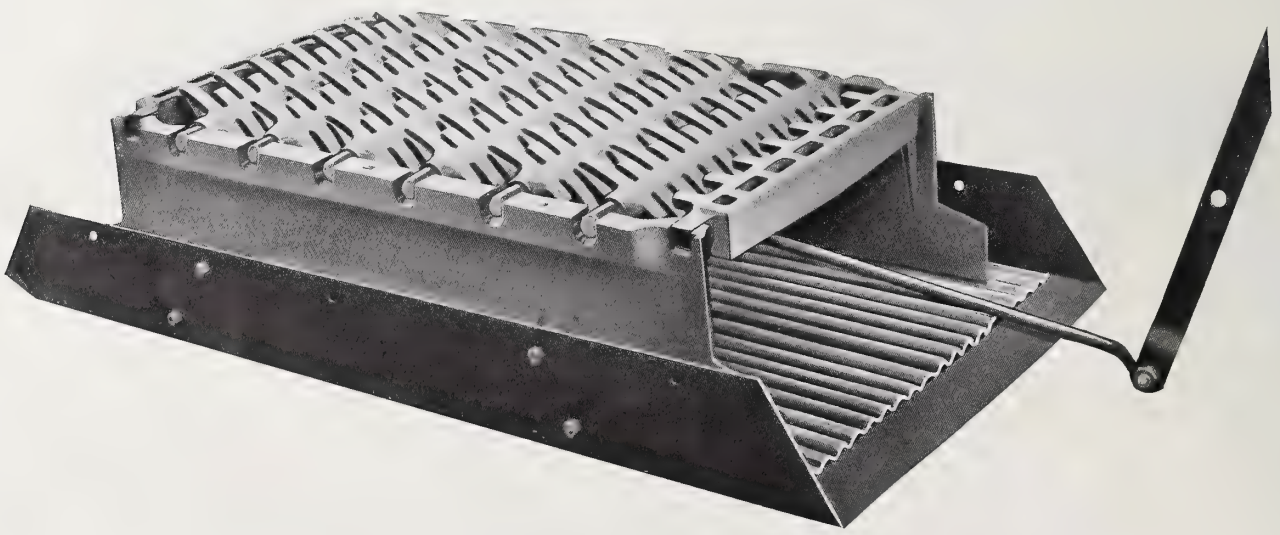
Sawyer-Massey Improved Rocking Grates, No. 2



Ready for Firing

The design of the Sawyer-Massey Improved Rocking Grates, No. 2, is brought out clearly in the illustrations. The spacing between the teeth has been carefully calculated to save coal and at the same time permit free shaking.

In these grates each row of teeth rocks, otherwise the No. 2 Grates are the same as the No. 1 Grates described on the preceding page.



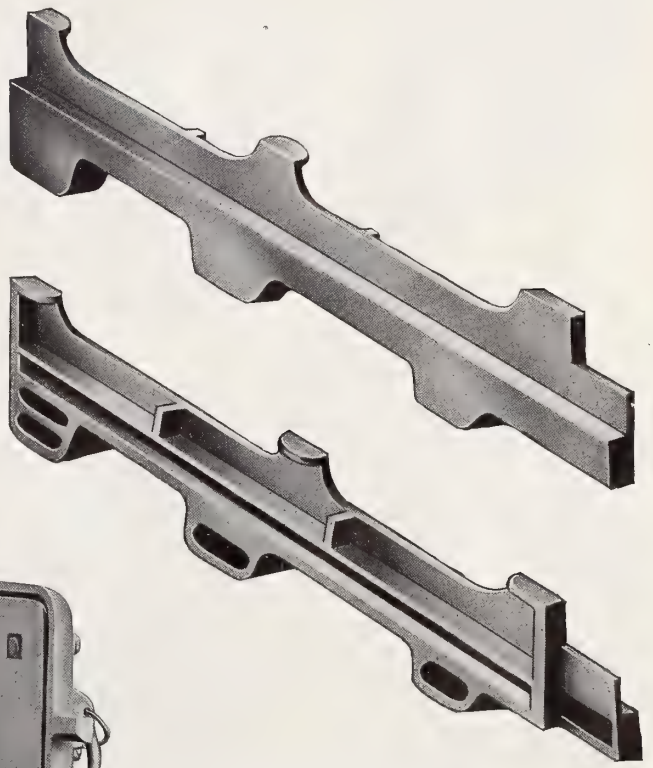
Showing Rocking Action of Teeth

Sawyer-Massey Boiler Tube Tests

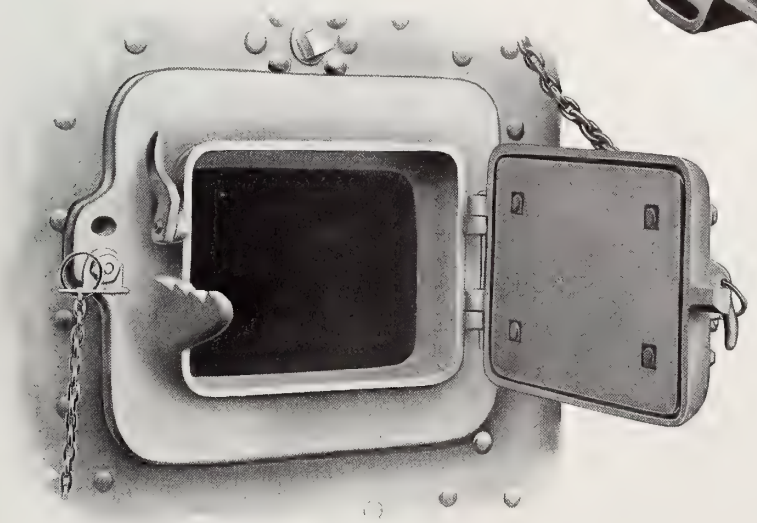
These illustrate some of the Tests to which Boiler Tubing is subjected in the Sawyer-Massey Factories to prove the Toughness and Ductility of the Material. In the building of Sawyer-Massey Machines all material is tested

Baffle Plates and Supports

The Baffle Plates are hollow, **allowing free air circulation to prevent burning out.** They are held in place by a ledge on the supports. Each Baffle Plate Support rests on three studs placed at the proper angle on the side of the fire-box. Both plates and supports can be instantly removed from the fire-box when changing from straw to other fuel.

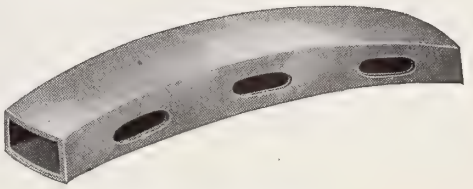


Baffle Plate Supports

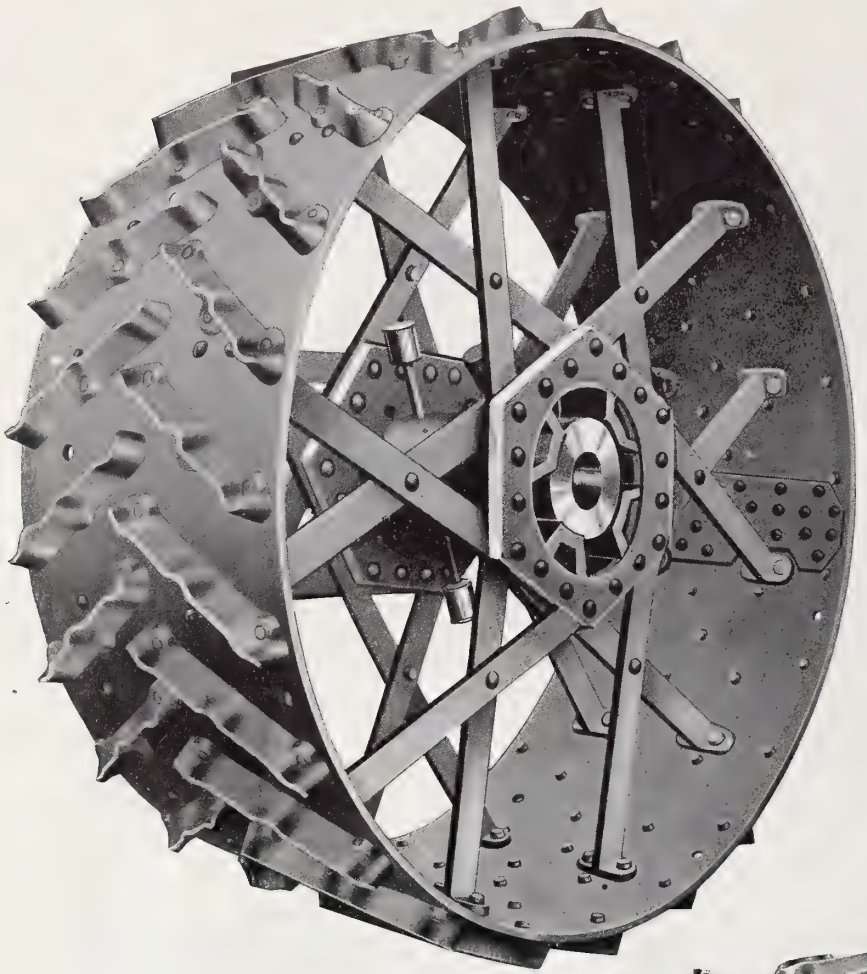


Improved Furnace Door

The important feature of this door is the protecting flange. This flange is on the casting and extends into the fire hole, protecting the joints and rivets around the fire hole from extreme heat or unnecessary exposure to the cold air. Also shows lining for inside of door.



Hollow Baffle Plate



Traction Wheels

The Sawyer-Massey Rear or Traction Road Wheel is of a design which is not only correct from the standpoint of scientific mechanical construction, but equally correct from the standpoint of practical service.

SPOKES. The Spokes are heavy and strong and forged in a special machine out of a solid piece of steel, without welding. The rivets are large and a sufficient number are used in each spoke. There are 24 tangent Spokes in each wheel, and all wheels are double-cleated diagonally.

LUBRICATION. While all Sawyer-Massey Class "C" Engines are of the rear drive type, on which the axles revolve in a babbitted bearing, two grease cups are placed on each wheel which can be used to lubricate the wheel should it be advisable to allow them to revolve on the axle.

Under ordinary conditions, the right-hand rear wheel is locked to the axle, while the left-hand wheel is free to revolve, or compensate, when turning corners or where one wheel travels faster than the other. On a straight draw, should the left-hand wheel show a tendency to slip, a Lock Pin is provided, **but should be only left in on a straight draw.**

CLEATS. The Cleats are scientifically designed according to the best mechanical principles and arranged, both as to angle and spacing, so as to give **the best possible grippage on the road.** They can be easily renewed.

EXTENSIONS. Where broader wheels are desirable Extensions are provided. These are made 6 and 12 inches in width and are carried in stock. In design these Extensions conform to the design of the regular wheels, and give additional grippage on the road.

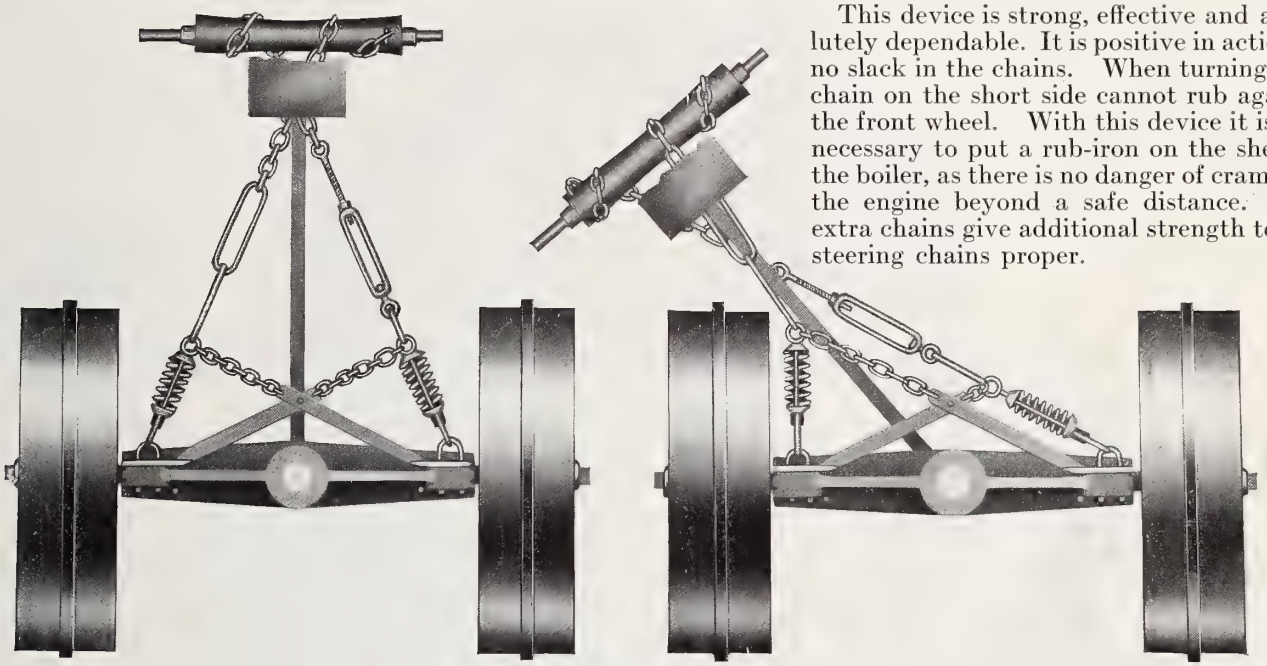
Special wide Extensions can be built on order, but cannot be supplied from stock.

Sawyer-Massey Wheel with Extension

The Sawyer-Massey Chain-Steering Device

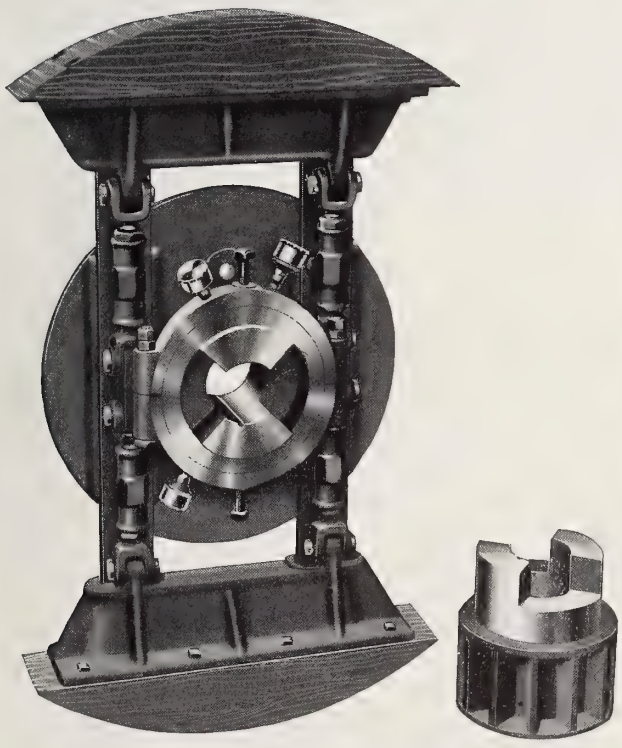
(Patented)

The Sawyer-Massey Chain-Steering Device is an important point to consider

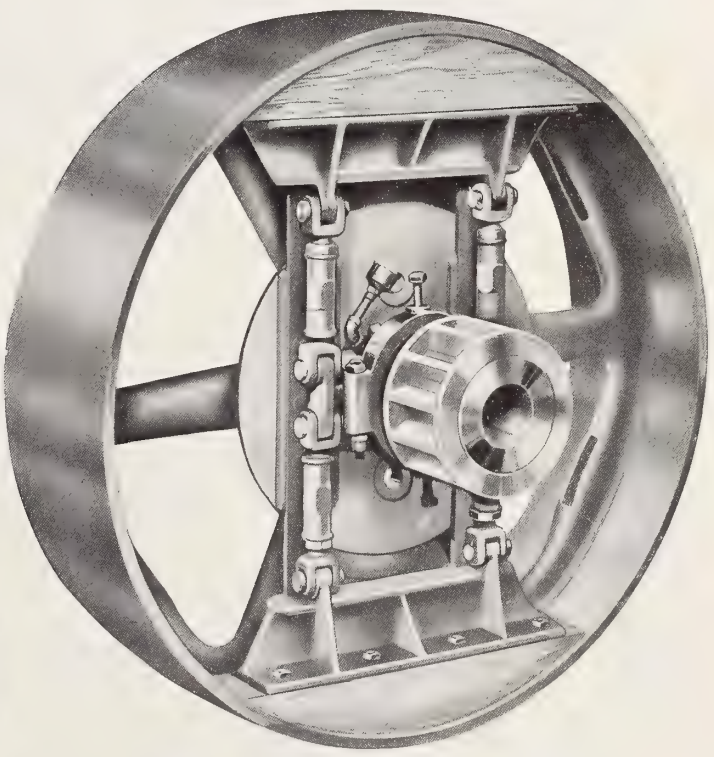


This device is strong, effective and absolutely dependable. It is positive in action—no slack in the chains. When turning, the chain on the short side cannot rub against the front wheel. With this device it is not necessary to put a rub-iron on the shell of the boiler, as there is no danger of cramping the engine beyond a safe distance. The extra chains give additional strength to the steering chains proper.

Sawyer-Massey Chain-Steering Device
(Patented)

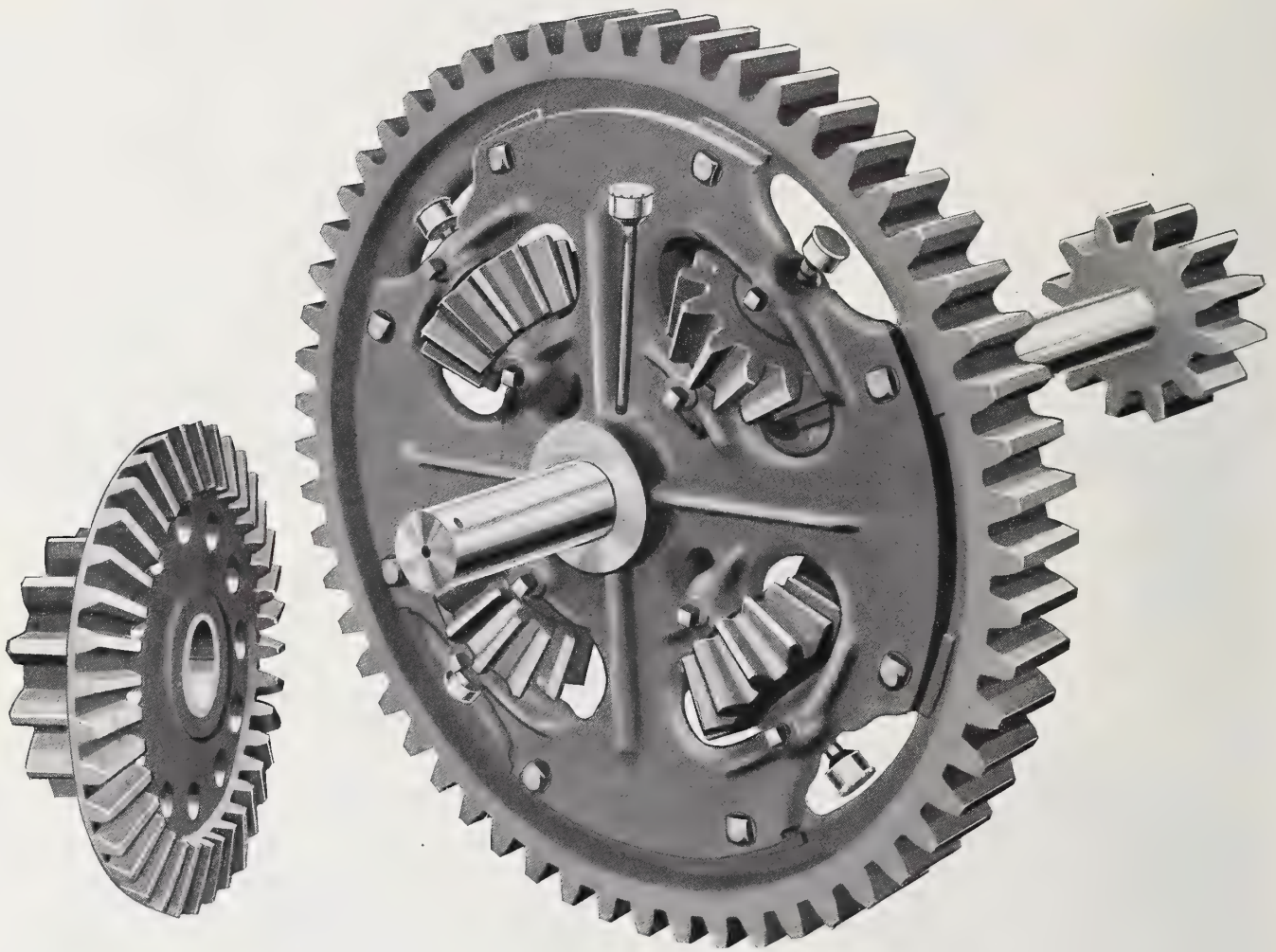


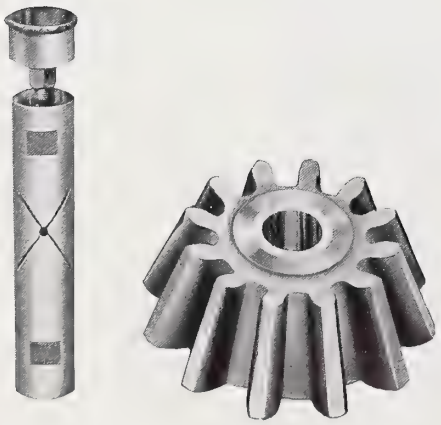
Sawyer-Massey Detachable Friction Clutch and Pinion



Showing Friction Clutch in Position in Fly Wheel

Compensating Gear on Sawyer-Massey Engines





Pin with Grease Cup.
Bevel Pinion with Bronze Bushing.

The Compensating Gear on Sawyer-Massey Class "C" Steam Engines is of a much improved design, having **four Bevel Pinions instead of three.** These Pinions are bushed with bronze and run on large steel Pins. These Pins, here illustrated, have a grease cup conveniently placed on the end of each, by means of which the grease is forced down through an oil hole, drilled endwise, and leading into grooves on the side of the Pin. **In this way a positive means is provided for keeping the bearings constantly greased.** The Pinions are made of a fine grade of steel, and are unbreakable. The large Bevel Wheels are also of the same material. The wheel on the right-hand side, which revolves on the shaft, is bushed with bronze. This bushing can be easily renewed in case of wear. The Compensating Wheel itself has been re-designed, and is now made in two pieces—the center, or hub; and the outer, or rim. **Should the teeth in the outer rim become worn from continual use in heavy plowing, the rim can be replaced at small expense.**

Sawyer-Massey Simple Engines

Sawyer-Massey Simple Engines are built in 30, 51 and 60 horse-power Side Mounted and in 68, 76 and 115 horse-power Rear Mounted. The boilers on which Sawyer-Massey Simple Engines are mounted are exactly the same as those used for Sawyer-Massey Compound Engines. The way in which the gearing and other parts in connection with the traction, or propelling mechanism, are constructed is the same in all our engines.

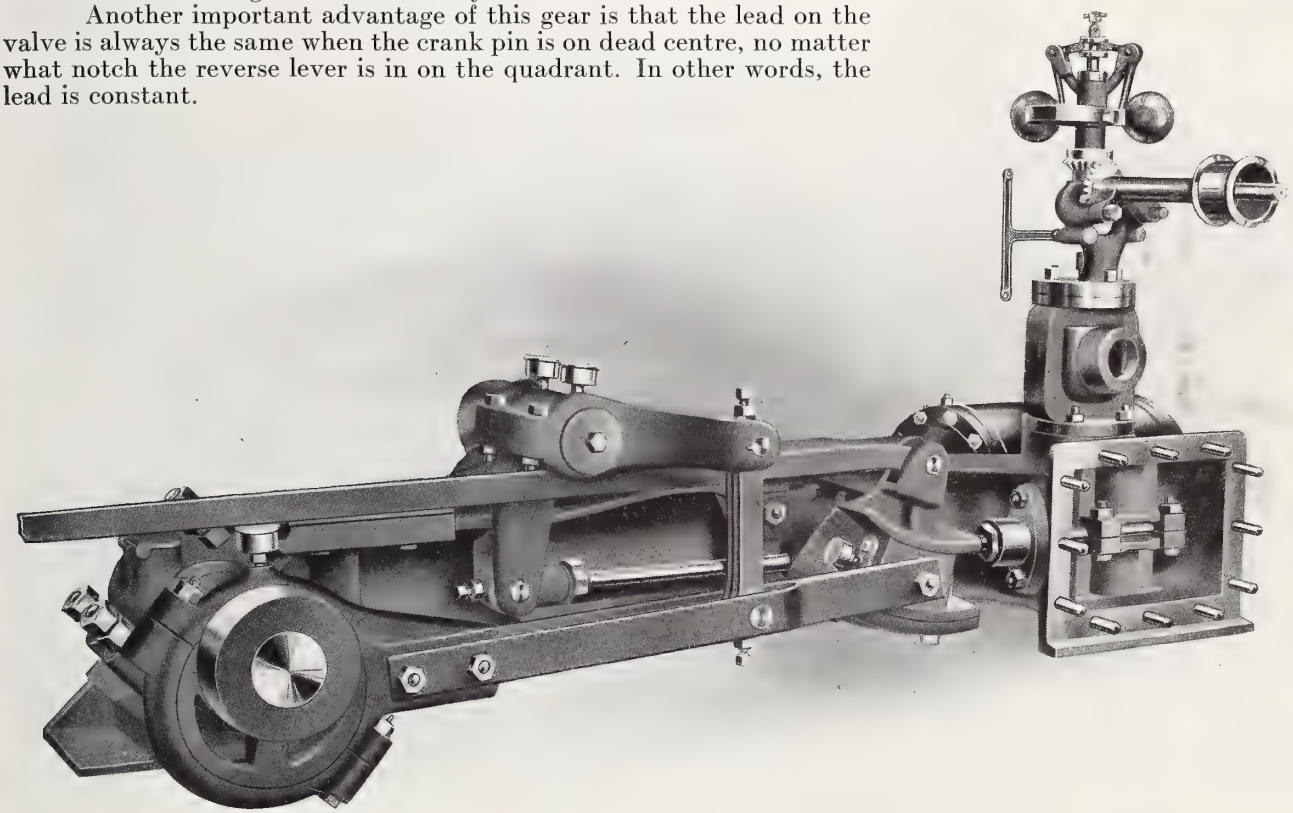
The accompanying illustration shows the design of the Cylinders used on the Simple Engines, and also the manner in which our special Valve Gear is attached.

Sawyer-Massey Valve Gear

The Sawyer-Massey (Woods' Patent) Valve Gear is the most simple and accurate mechanism ever applied to a Traction Engine. Its many points of advantage are readily appreciated.

One eccentric is used instead of the two commonly used where the link motion is employed; on account of the peculiar construction of the gear, the eccentric performs its duty with a minimum amount of friction, due to the valve traveling a distance of only 2 1-16 inches on its face in the steam chest.

Another important advantage of this gear is that the lead on the valve is always the same when the crank pin is on dead centre, no matter what notch the reverse lever is in on the quadrant. In other words, the lead is constant.



Sawyer-Massey (Woods' Patent) Valve Gear

The point of cut-off is always equal when the piston has traveled a certain distance from each end of the cylinder, whether running forward or backward, thus entirely overcoming the angularity of the connecting rod, and always producing an equal exhaust.

This construction being followed throughout, it is a simple matter to have the engine always running noiselessly, a feature which is difficult and expensive to obtain with the ordinary link.

In addition to the bearings in which pins are used being adjustable, the circular segment or reversing head is also provided with a gib, by which any play in the sliding block, which controls the valve travel, can be taken up.

In adopting this Valve Gear, we have paid special attention to the construction of the parts, having them of a suitable length to allow an early cut-off. This insures the greatest economy in an engine by admitting the steam quickly to the cylinder at the proper time, by not using it any longer than is absolutely necessary to do the required amount of work, and by getting the fullest possible benefit of the expansion of the steam.

All parts are accessibly placed on the cylinder frame, and every bearing can be oiled while the engine is in motion.

With this Valve Gear it is easy to reverse the engine. The slightest movement of the reverse lever quickly alters the travel of the valve without changing the lead, the only difference noticeable being a change in the angle of the reversing head.

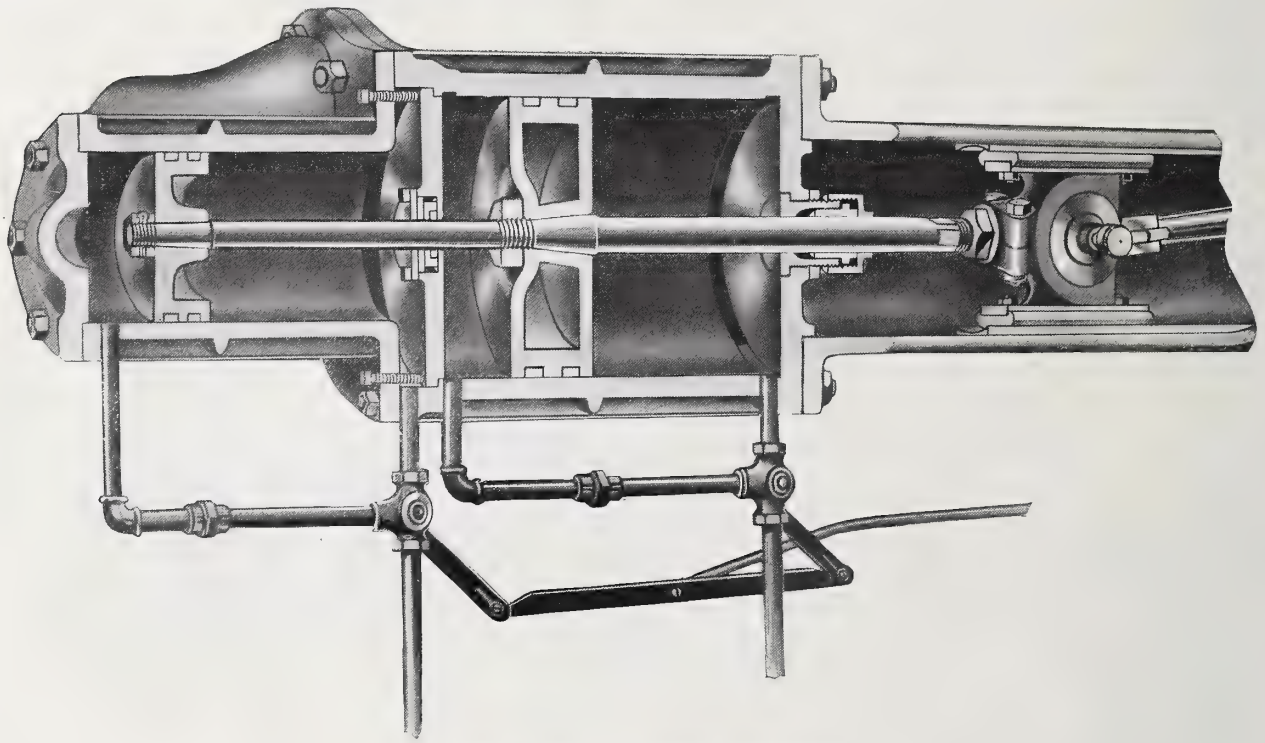
The possibilities of this Valve Gear can best be appreciated after a personal investigation or inspection, which will convince an experienced operator that it is possible to get more power out of the cylinder with the Sawyer-Massey Valve Gear than with any other device yet introduced.

Sawyer-Massey Compound Engine

The Sawyer-Massey (Woolf Patent) Compound Engine is built in 82 and 100 horse-power, for rear mounted tractors.

CYLINDERS. The two cylinders are placed tandem; that is, one ahead of the other. The high-pressure, or small, cylinder is in front, with the low-pressure, or large, cylinder between the high-pressure cylinder and the engine frame. The two cylinders are divided by a Division Head, described on page 36. The illustrations on this and the following page will give a clear idea of the strong and simple construction of every part.

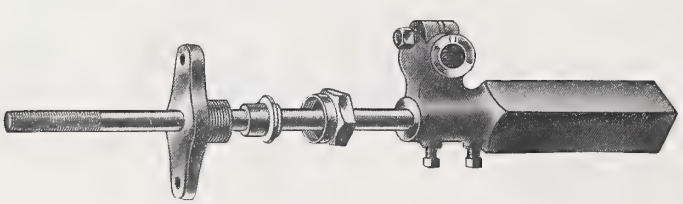
ECONOMY. The great economy of the Compound Engines comes from the less amount of fuel required for a given amount of power. After doing the work in the high-pressure cylinder, the steam passes into the lower-pressure cylinder, where it further expands, working on the low-pressure piston. After passing through both cylinders, the exhaust pressure will be much less than with a single cylinder, and the difference will show the actual power gained by use of the Compound Engine.



Sectional View of Compound Engine

CONSTRUCTION. The greatest care is exercised in every detail of construction, and every part is made under the close inspection of skilled foremen. Every part is made in our own factory from the highest grades of material obtainable. A study of the shop pictures on the first pages of this catalogue will impress you with the special machinery and equipment required in building Sawyer-Massey engines.

The above sectional view of the Sawyer-Massey Compound Engine will serve to give a clear understanding of the parts and the manner in which they are assembled. At the left is the small, or high-pressure, cylinder, in which is shown the high-pressure piston, the position of the piston rings and the manner of attachment of the piston to the tapered rod. Next is the large, or low-pressure, cylinder, showing the low-pressure piston and the new manner in which it is attached to the rod by being tapered and further secured by phosphor bronze nut.



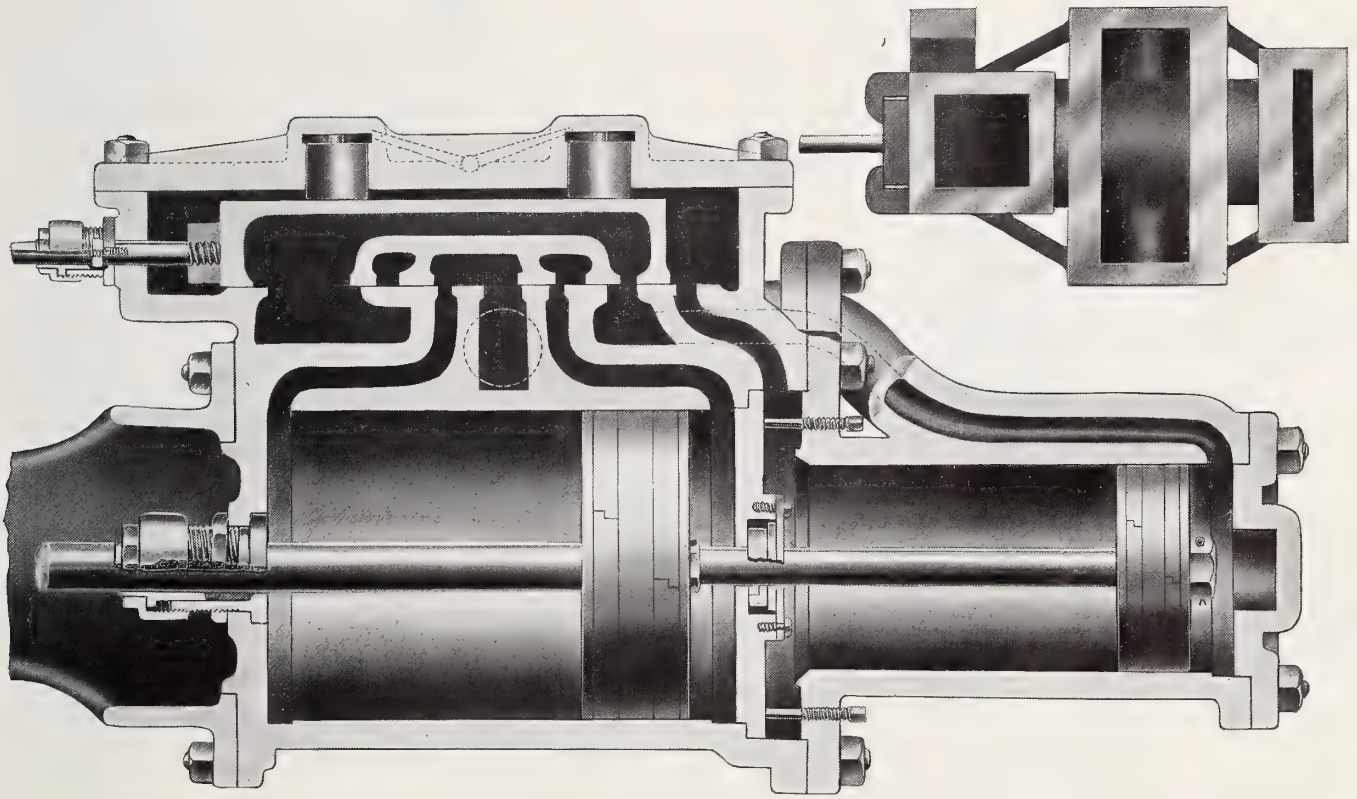
Valve Rod and Slide

(Also shows Stuffing Box in Sections)

The metallic packing and its position between cylinders is also shown, as is the piston rod stuffing box at the right-hand end of the low-pressure cylinder. Note the simple manner in which the high-pressure cylinder can be entered from the outside end, and the flanged joints which make it easy to get at any part. This is one of the simplest Compound Engines to be found, and yet its mechanism is such that there is positively **less waste of steam and less cost for repairs than with any other Compound on the market at the present time.**

The sectional view below shows the general construction of the cylinders and valve of the Sawyer-Massey Compound Engine. The large, or low-pressure, cylinder is bolted to the frame, while the small, or high-pressure, cylinder is bolted to the larger cylinder in the same manner as a cylinder head, and by removing the nuts holding them together either cylinder can be lifted off. The plate, or division head, separates the two cylinders, and is held in place by three set screws. The pistons are both secured on the same rod. Where the rod passes through the plate, metallic packing is used. The high-pressure port opens directly into the inner end of the small cylinder, while the other goes through the flange and into the other end. Thus the single flange joint is made to serve in joining the two castings, also in joining the two sections of the port.

It will be seen that the entire distribution of steam for both cylinders is controlled by a single valve cast in one piece. It is especially deserving of notice as being the only completely satisfactory and permanently balanced valve yet invented. The steam from the boiler enters the cavity on the face of the valve, on its way to the small cylinder, and when exhausted from it, passes over the back of the valve to the large cylinder. The ratio of the surfaces exposed on each side corresponds to the difference in pressure there is between the steam entering from the boiler and the pressure at which it passes to the low-pressure cylinder. In this way the requisite balance is obtained, and while the engine is working it is maintained throughout all the variation of the pressure of the steam passing through the governor.



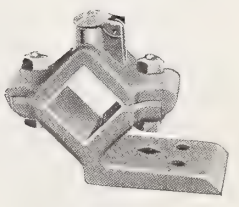
Sectional View Compound Engine

Sawyer-Massey Compound Cylinder Division Head

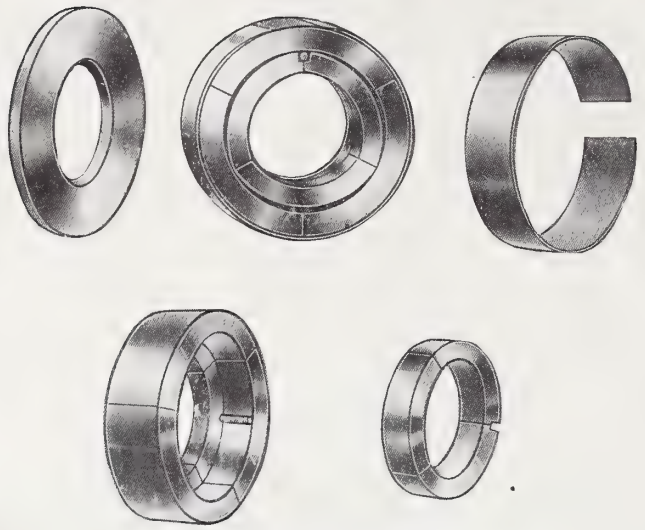
(See Page 36)

The Division Head between the high and low-pressure cylinders on Sawyer-Massey Compound Engines and the steam-tight metallic packing rings for same are here shown. The packing rings are entirely metallic, consisting of two circles of best quality of phosphor bronze cut into three segments each, one setting into the other in such a manner that the divisions between segments come conversely, or in other words, break joints, and are securely compressed and retained in place by a stiff steel spring. It is then capped by a perfectly fitting flat ring, and the whole secured in place by a flat steel plate, which is fastened to the division head with set bolts.

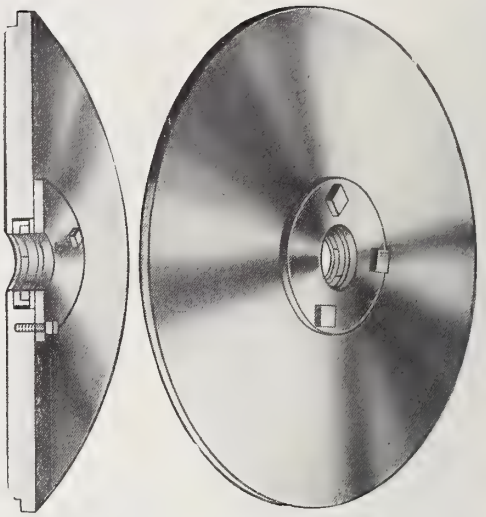
This packing is scientifically simple, permitting piston rod to run free and cool, yet effecting and maintaining a perfect steam division between cylinders.



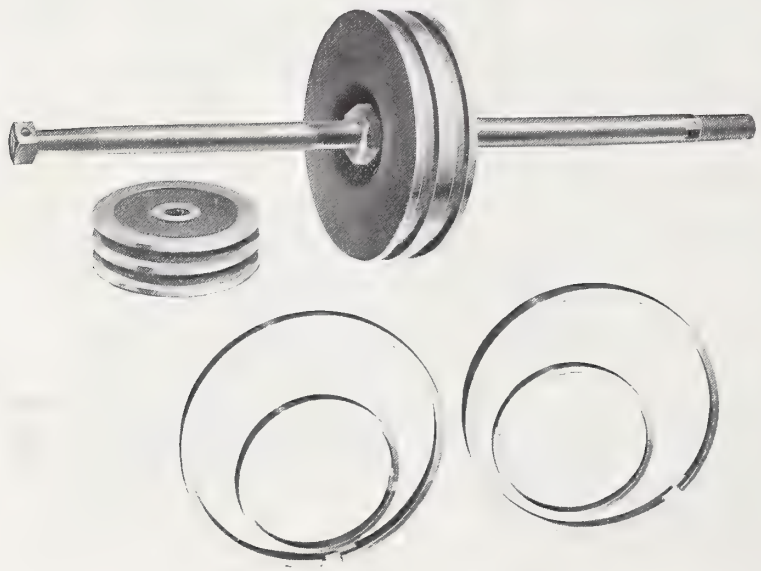
Self-Lubricated Valve Slide Box



Metallic Packing Rings used in Division Head



Compound Cylinder Division Head
(See Page 35)

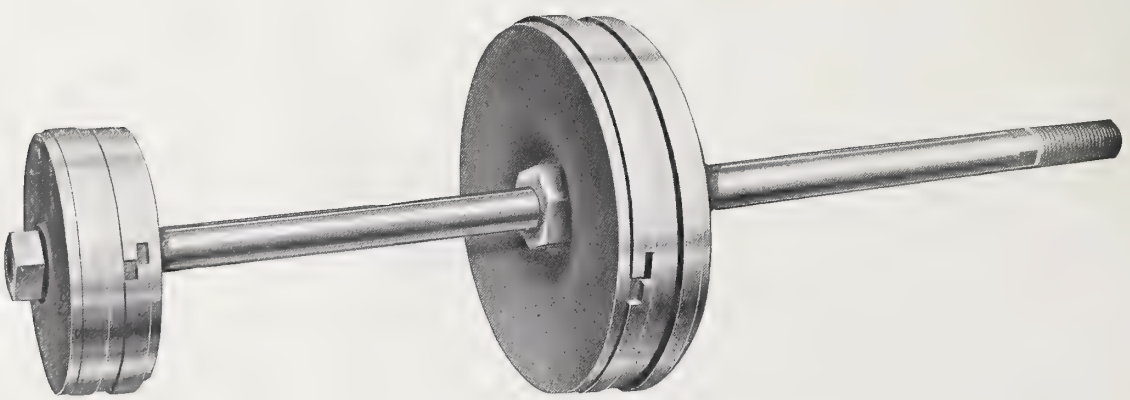


Low-pressure Piston and Rod with High-pressure Piston and Rings Removed

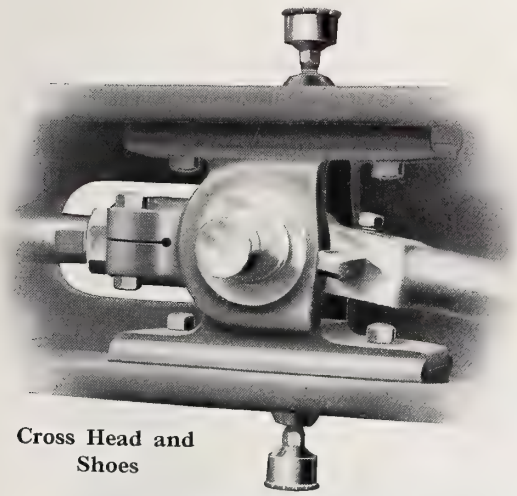
Sawyer-Massey Piston and Rod

The Sawyer-Massey Piston is provided with a heavy strong steel Piston Rod, and its attachment is made secure by pressing the heads on the Rod by hydraulic pressure, and is followed up and held securely in its place by a large phosphor bronze nut, as shown in the cut. The Piston Rod, made of the very best quality machinery steel, is tapered to receive both low and high-pressure Piston, which is securely fastened to it with a nut, secured by a steel pin.

The Piston rings, of refined iron, are cast larger than the Piston itself, and heavier on one side, so that after being cut and compressed to the diameter of the cylinder and refitted, they constitute a perfect and durable steam-tight fit, due to the correctness of their adjustment and their constant pressure on the bore of the cylinder.



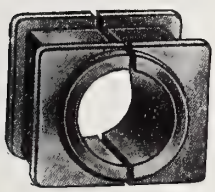
High and Low-pressure Pistons and Rod Complete



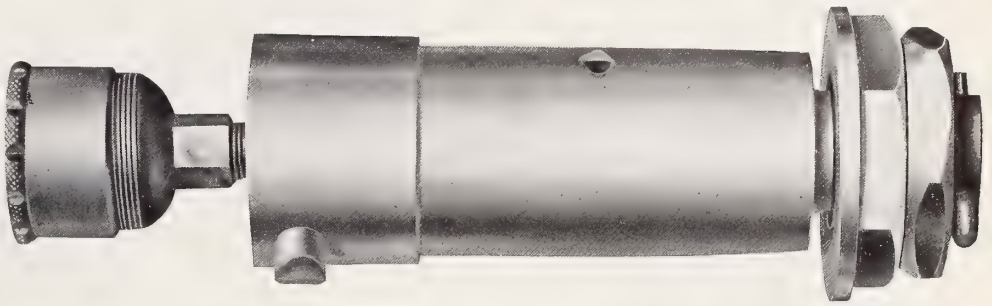
Cross Head and Shoes

The Sawyer-Massey Cross Head has ample size and strength. It is made with a split hub, and is held tightly on the piston rod thread by two clamp bolts and jamb-nut.

Broad Faced, Adjustable, Phosphor Bronze, Connecting Rod Box, Cross Head End



Broad Faced, Adjustable Phosphor Bronze, Connecting Rod Box, Crank Pin End



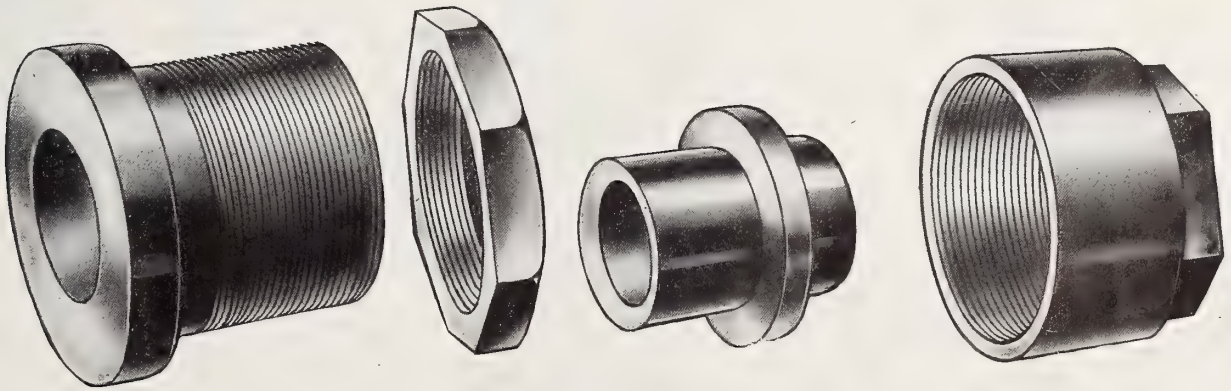
Sawyer-Massey Cross Head Pin

The Steel Cross Head Pin has liberal bearing surface and is drilled through the centre to readily receive the grease from the force feed cup. The cross holes facilitate the grease finding its way into the phosphor bronze boxings, ensuring their running smooth and cool.

Sawyer-Massey Connecting Rod

The Sawyer-Massey Connecting Rod is of forged steel, and is correctly proportioned. Both its boxes are broad faced and made from high-grade phosphor bronze. The crank pin box is secured by a perfect-fitting drop forged steel trap. The skeleton cut below shows how simply yet effectively the taper keys and set screws take up the slack, keeping the boxes snug and saving undue wear.

Phantom View of Connecting Rod, Showing Adjustment of Boxes



Stuffing Box Parts

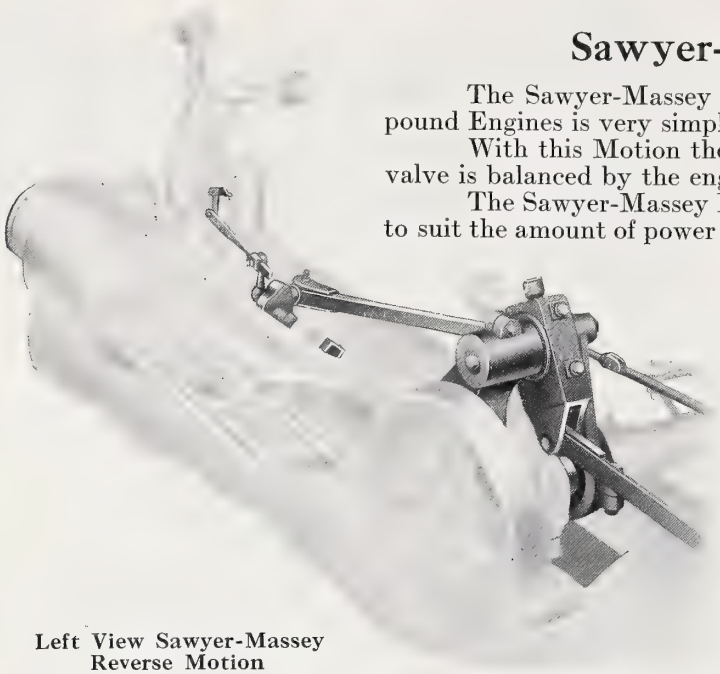
The first piece at the left, the stuffing box proper, receives and holds the third piece, or gland, in front of which packing is coiled. The fourth piece, or gland cap, is screwed on and the whole is securely held in place in end of cylinder by the second piece, or jamb-nut. This device is simple, accessible and permits no waste of steam.

Sawyer-Massey Reverse Motion

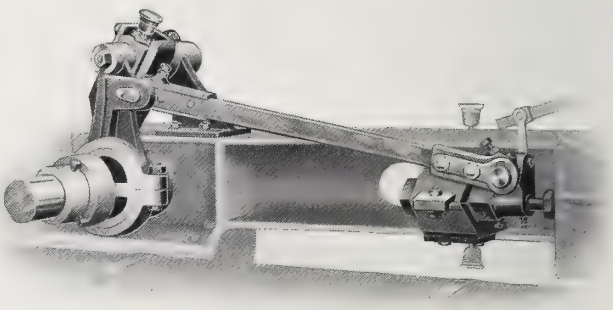
The Sawyer-Massey (Woolf Patent) Reverse Motion used in all our Compound Engines is very simple, and particularly well adapted to this type of engine.

With this Motion the engine is reversed without jolt, or shock, because the valve is balanced by the engine's own steam pressure.

The Sawyer-Massey Reverse Motion can be set so as to vary point of cut-off to suit the amount of power required, and secure the full benefit of steam expansion. At the same time the lead will always be found equal, or constant, at all four points.



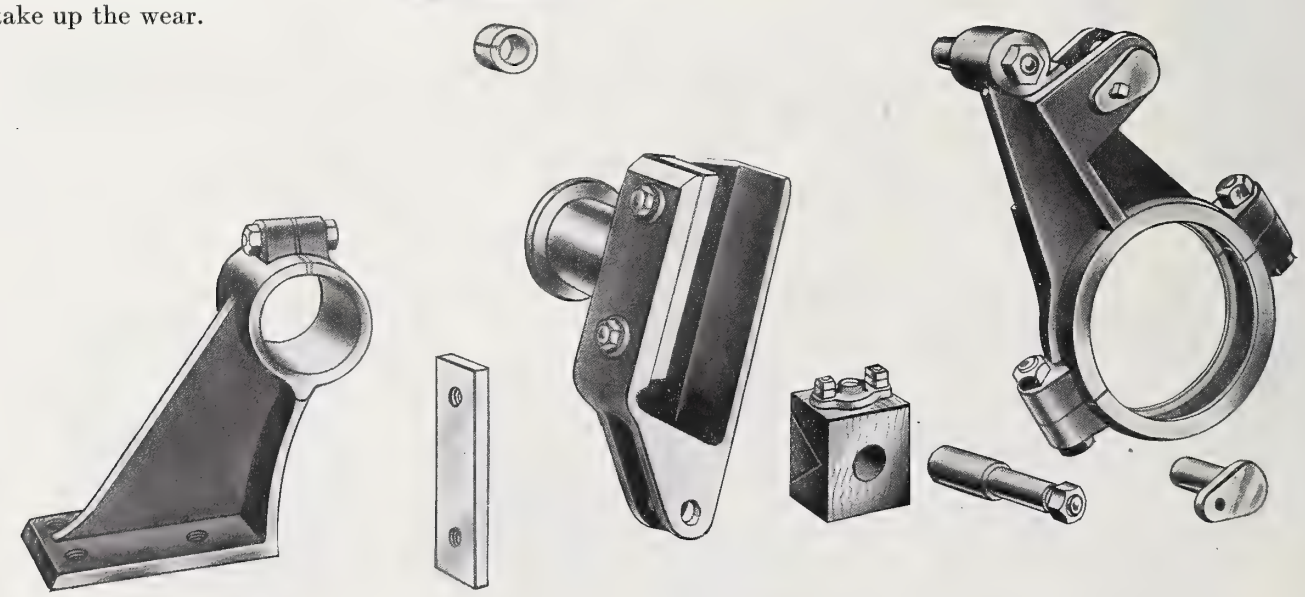
Left View Sawyer-Massey Reverse Motion



Right View Sawyer-Massey Reverse Motion

The Sawyer-Massey Reverse Eccentric Rod

The boxes at each end of this rod are broad faced, made of best quality of phosphor bronze. They are convenient to oil, and are fitted with set-screws to take up the wear.



Working Parts of the Sawyer-Massey Reverse Motion

Every part is made of the best refined iron, drilled and accurately turned. The reversible head is equipped with plate for regulating adjustment, with block sliding therein. The block is of selected hard maple, thoroughly oil soaked, a device more durable and satisfactory than a metal block.

GAS TRACTION ENGINES

Sawyer-Massey Gold Medal Gas Tractor

The unqualified endorsement of men who own and use Sawyer-Massey Gas Tractors tell the story of the success which has attended this machine since its first appearance. As an efficient and dependable factor on the farm, the gas tractor is fully recognized. The Sawyer-Massey Gas Tractor not only commends itself for reason of these qualities, but as well for its design, economy in use of fuel, and its low cost of maintenance.

While users everywhere are unsparing in their praises of this reliable servant of the farmer and thresherman, perhaps the best proof of its merits are the results obtained at Winnipeg last July in the International Motor Contest. **Here this tractor scored far and away the highest number of points, being awarded the First Prize and Gold Medal.** Aside from showing the prettiest and straightest furrows, the low fuel cost and small amount of water required were the source of considerable astonishment and the topic of general conversation among spectators.

Freedom from vibration was one of the points demonstrated in the contest. This means that, with the Sawyer-Massey Gas Tractor, it is out of the question for parts to get out of order, or become loose, as a result of shaking when in use.

The records of this contest show that excess horse-power was developed. **The engine was rated at 45, and produced as high as 58.3 brake horse-power,** which goes to prove that the Sawyer-Massey Gas Tractors are honest, their capacity being under-rated rather than over-rated.

The engine of the Sawyer-Massey Gas Tractor is simple in its construction: it is easily operated and easy to keep in good working order; it is the outcome of careful study through long experience in engine building. The problems that face users have been thoughtfully considered to the end that an engine has been designed, and perfected, that overcomes all difficulties and meets every requirement.

Points of Superiority over Competing Tractors brought out by Severe Test of SAWYER-MASSEY 25-45 H.P. Gas Tractor at Winnipeg

ECONOMY OF FUEL

1.—Fuel cost per acre in plowing, 56.66 cents. Competitors (verified), 59.9 cents and 67.4 cents. Gasoline figured at 27 cents per gallon.

2.—Fuel used per acre, in pounds, 14.65. Competitors (verified), 15.52 and 17.46.

3.—Fuel used in two-hour brake test, in gallons, 8.86. Competitors, 12.22, 12.86 and 16.86. (Per hour, 4.43, 6.11, 6.43 and 8.43.)

ECONOMY OF WATER

1.—Water used in two-hour brake test, in gallons, .15. Competitors, 44.7, 48.4 and 32.6.

2.—Water used in plowing, pounds per acre, 3.28. Competitors, 75.6, 32.6 and 97.

3.—Water used in plowing per mile travelled, in pounds, 3.7. Competitors, 46.1, 104.4 and 108.6

4.—Possible miles travelled without replenishing water, 15.5 miles. Competitors, 10.6, 10.2 and 9.13 miles.

EXCESS BRAKE HORSE-POWER

Excess horse-power over rating, 29.6 per cent. Competitors, 18.4 per cent., 7.7 per cent., one short 7.7 per cent. (over-rated).

HIGH QUALITY OF PLOWING

SAWYER-MASSEY received eight out of ten points possible. Competitors 4.5, 6.5 and 6.25 points.

FREEDOM FROM VIBRATION

None showed less vibration than the SAWYER-MASSEY Gas Tractor.

FINISH, DURABILITY AND PROPORTION OF PARTS

None received more points than the SAWYER-MASSEY.

FREEDOM FROM PENALTIES

1.—Tractor did not stop once during test; all competitors in same class did.

2.—Sustained no penalty for having plows out of ground.

3.—Only engine in this class having no time loss due to engine.

GREATEST SPEED RANGE

2 and 3½ miles per hour. Competitors, (a) one speed, 2.2 miles; (b) one speed, 2 miles; (c), 1¾ and 2¾ miles.

SAWYER MASSEY

Sawyer-Massey Gas Tractors in Action

SAWYER MASSEY

Sawyer-Massey Steam Tractors in Action

Details of the Sawyer-Massey Gas Tractor

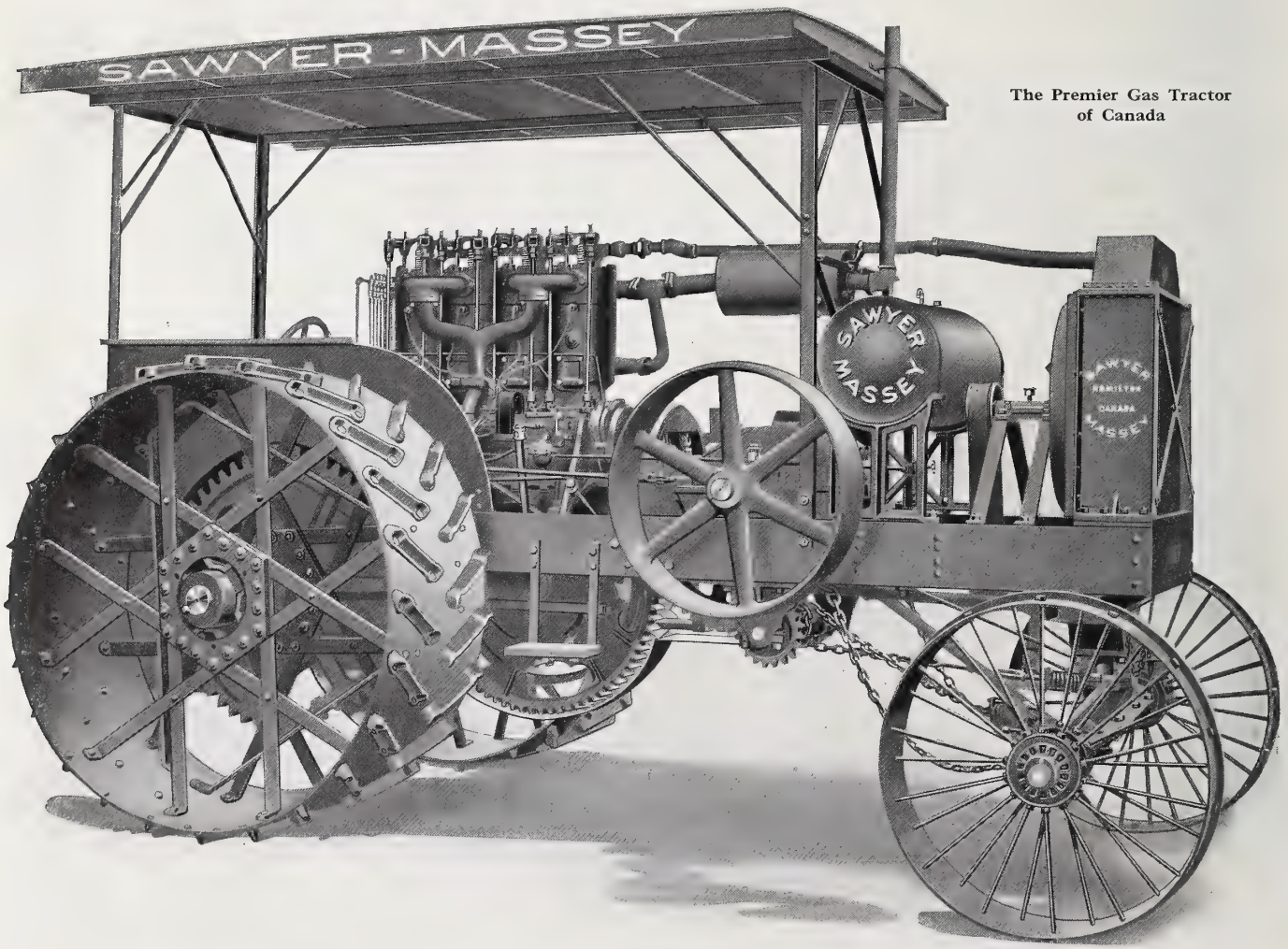
MOTOR. The Sawyer-Massey Gasoline Motor is of the 4-cylinder 4-cycle vertical type, water cooled; with less weight per horse-power than the average single or double cylinder engine. The four cylinders give a frequency of impulses which is absent from the single and double cylinder engines, and they insure a continuous flow of power to the gearing, thus lessening strains and torsional stresses.

CRANK-CASE. The crank-case is enclosed, is dustproof and provided with hand hole openings for inspection, the covers of which can be instantly and easily removed. The lower half of the crank-case constitutes an oil pan. Access to the connecting rod bearings is through removable plates in bottom of crank-case. By arrangement of the lubricating system the oil in the crank-case remains at a constant level, and on account of the dustproof construction of the crank-case, the oil does not collect foreign matter.

CRANK-SHAFT. This is drop forged from high carbon steel, and is very solid and substantial. It is correctly balanced and is provided with interchangeable die cast babbitted bearings. All bearings are ground and the crank throw is of exceptional thickness, giving more than the requisite strength. We have never yet had any occasion to replace a crank-shaft in the Sawyer-Massey Gas Traction Engine.

CRANK-SHAFT BEARINGS. The crank-shaft has five bearings $2\frac{5}{8}$ inches in diameter, one on each side of each crank. The total bearing surface is $20\frac{1}{2}$ inches. The crank bearings are $2\frac{3}{4}$ inches in diameter and $3\frac{1}{2}$ inches long. All bearings on crank-shaft are die cast babbitt and are held in place by caps. To renew the bearings it is not necessary to remove the crank-shaft.

PISTONS. The pistons are 9 inches long and are fitted with 4 expanding piston rings with butt joints. Each ring is fastened to the piston with a pin, in order to prevent them turning, and pistons and rings are ground to micrometer measurements. An added feature is the provision of an oil groove just below the bottom ring, which scrapes off the extra oil and allows it to run through holes to the inside of the piston and the piston pin bearings. Two extra oil grooves are provided at bottom end of piston to help keep the oil from getting into the combustion chamber. The piston is very carefully machined, and, as above stated, is ground to exact measurements.



The Premier Gas Tractor of Canada

Sawyer-Massey Gas Tractor—Right View
25-45 Horse-Power

PISTON PINS. The piston pins are of generous size, being 1⅝ inches in diameter, made of steel, case hardened and ground. They are provided with bronze bushings in the piston, which can be renewed when required.

CLUTCH. The clutch is of the expanding shoe type, is self-locking, and is provided with friction shoes of hard maple which can be easily replaced. For adjustment, a turn-buckle and locknut are used, which enables taking up the wear on the shoes caused through friction. This clutch is used for forward and reverse work, as well as for belt work.

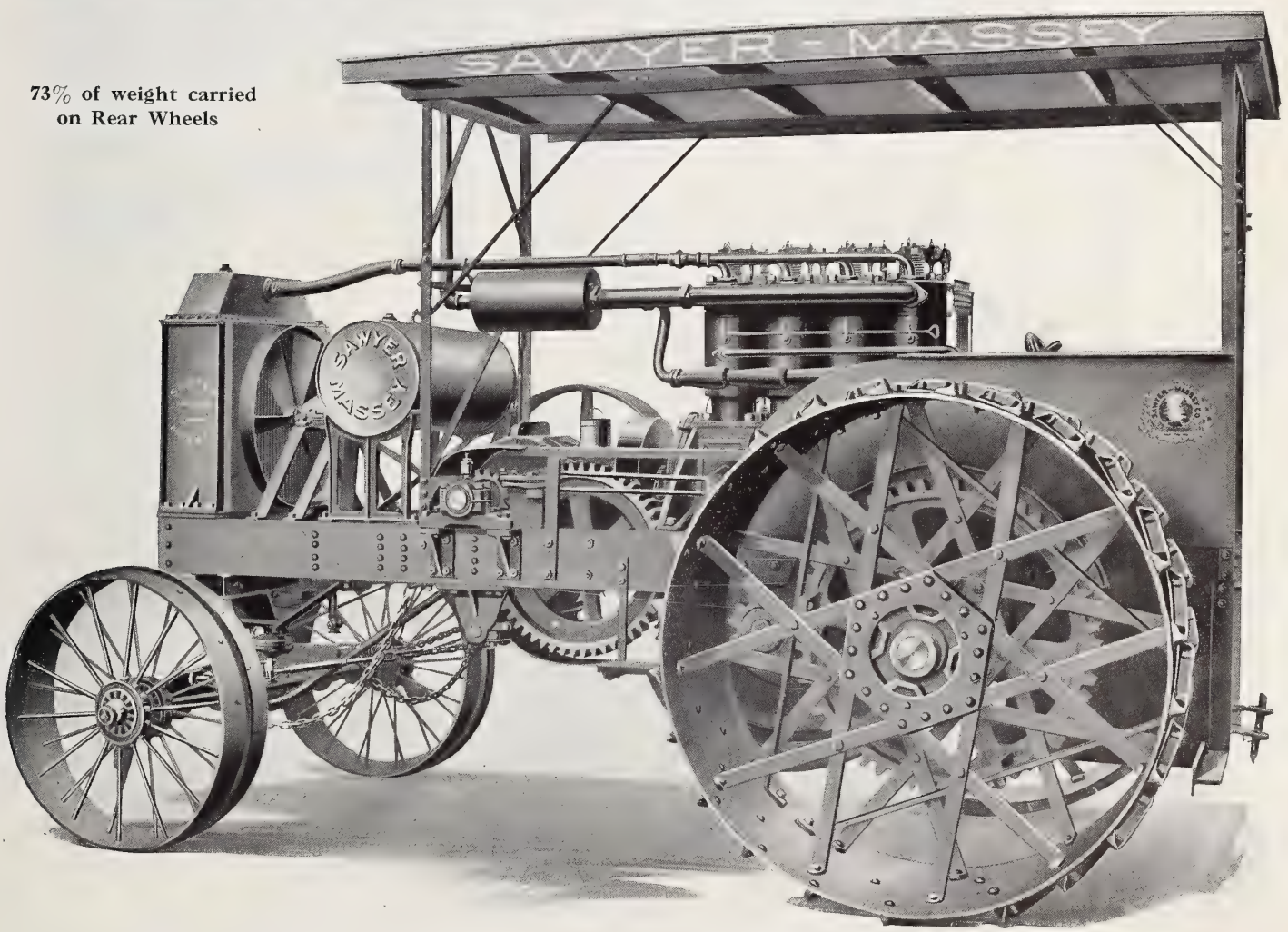
BEVEL GEAR CASE. This is cast in two pieces and has a hand hole for inspection purposes covered with a plate, which can be quickly removed. The bevels are free on the pulley shaft. The pinion runs between the two bevels, and to reverse, a dog clutch is used which operates between the two bevels into one or the other gears. The shafts of the gear case are provided with four double row annular ball bearings, which take both radial and thrust loads. These bearings prevent any side motion, and are very much superior to the babbitted bearings, as they insure that the bevel gears will always remain correctly aligned. The bevel gears are made of steel with machine cut teeth. The case is dustproof, and the gears run in a bath of oil which insures minimum wear on the parts and helps to transmit the power with the least possible friction loss.

SPEED OF TRACTOR. The Sawyer-Massey Gas Tractor has two speeds, one of 2 miles per hour, the other of 3½ miles when the motor is running 600 revolutions per minute. Speed is changed by means of an interlocking lever from the operator's platform, so that it is impossible to have both gears in mesh at the same time. Speed can also be increased or decreased at the will of the operator by increasing or decreasing speed of motor.

GEARS. The train gears are placed inside the frame and have 4-inch face and 1¾-inch pitch. The low speed pinion is cast steel. The intermediate gear has a bronze bushing 10 inches long.

The traction wheel gears are 5-inch face and 2½-inch pitch. All pinions are of cast steel. The bull pinions are supported by a frame bearing close up to the gear, which leaves no overhang as in other makes, and these gears are perfectly aligned and smooth in their running, which insures almost noiseless operation.

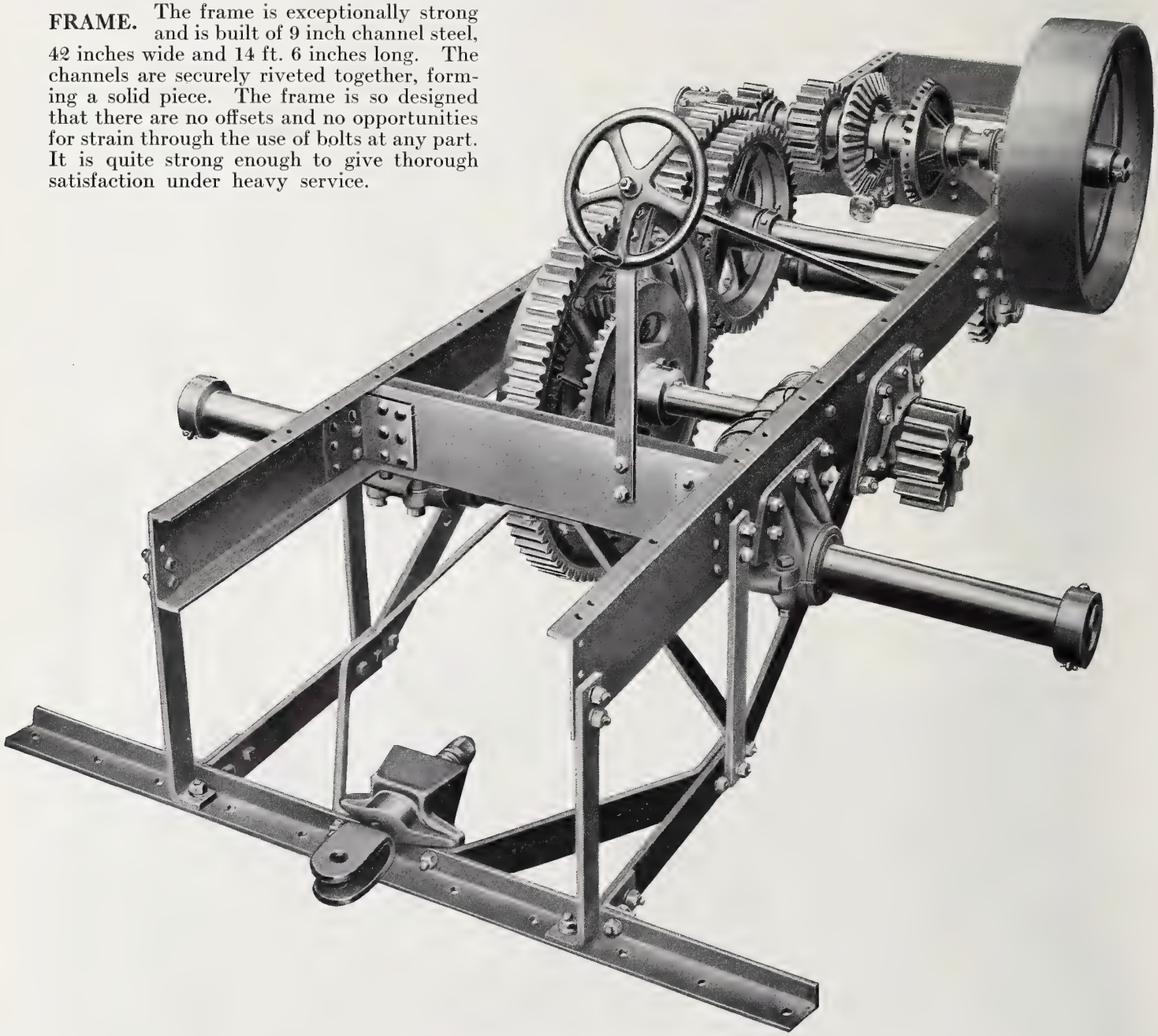
73% of weight carried on Rear Wheels



Sawyer-Massey Gas Tractor—Left View
25-45 Horse-Power

WHEELS. The rear wheel is 68 inches diameter with a 30-inch face. There are 48 diagonal cleats and 24 spokes ¾ x 2¼ inches in each wheel. The wheels are of generous size so that the tractor can work efficiently in soft ground, and, if required, extensions to the wheels 12 inches wide can be supplied. Ten mud hooks are supplied with the engine. The front wheels are 40 inches in diameter, 12-inch face with 28 ⅝-inch spokes in each wheel. Both front and rear wheels are of steel construction.

FRAME. The frame is exceptionally strong and is built of 9 inch channel steel, 42 inches wide and 14 ft. 6 inches long. The channels are securely riveted together, forming a solid piece. The frame is so designed that there are no offsets and no opportunities for strain through the use of bolts at any part. It is quite strong enough to give thorough satisfaction under heavy service.

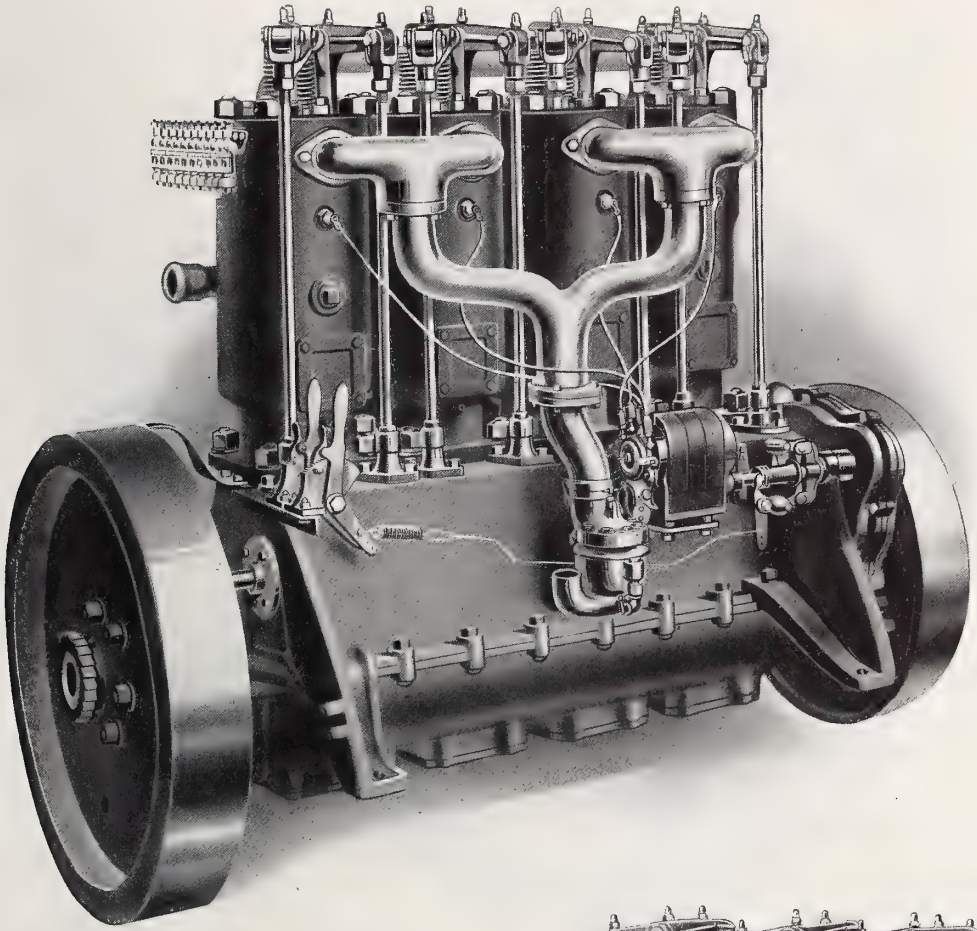


Sawyer-Massey Gas Tractor Frame
Showing Draw Bar, Shafting, Gears and Pulley in Position

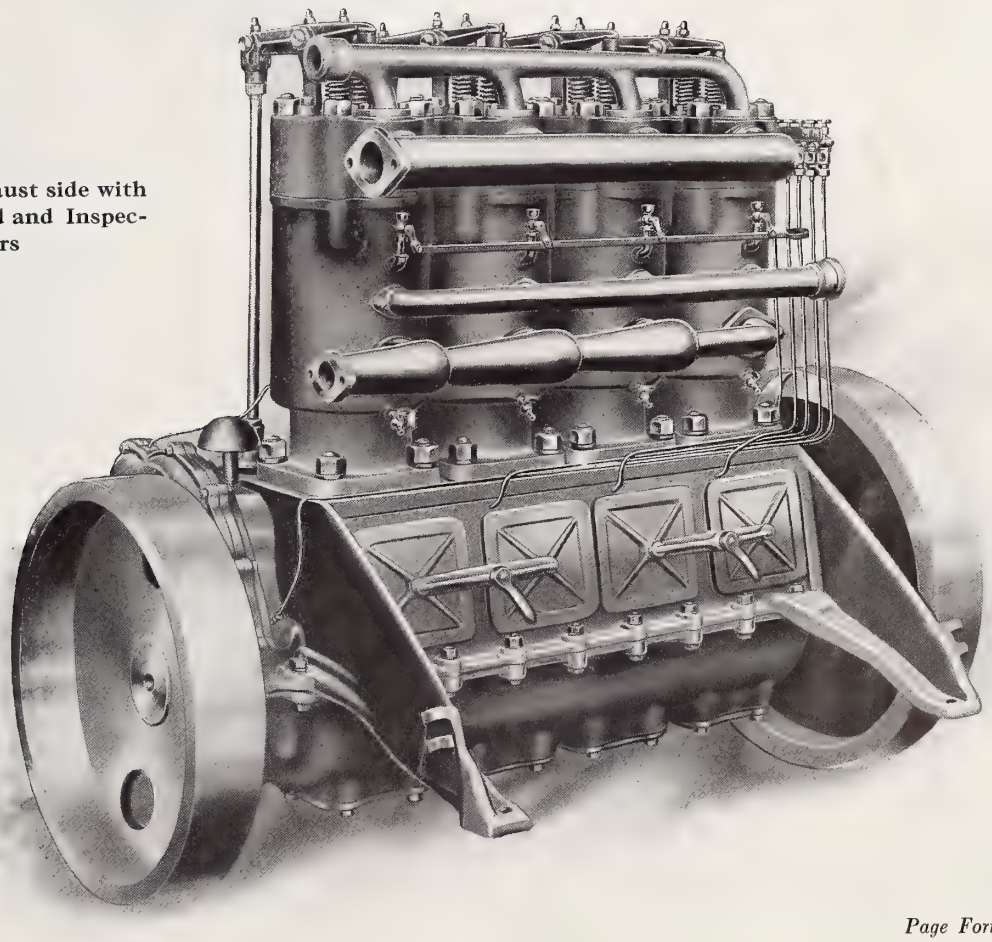
AXLES. The rear axle is made of crucible steel 4⅜ inches diameter and 103½ inches long. They carry the tractor on two babbitted boxes 10 inches long, which are placed close to the hub of the wheel, overcoming any side draft or spring on the axle. The front axle is 2½ inches square steel with turned arms supported by a long saddle which takes a ball pedestal forming a swivel. This permits of travelling on rough or uneven ground without undue strain on the frame or motor.

PULLEY. The pulley is 36 inches in diameter with 10-inch face, and runs from 250 to 300 revolutions per minute.

Sawyer-Massey Gas Motor

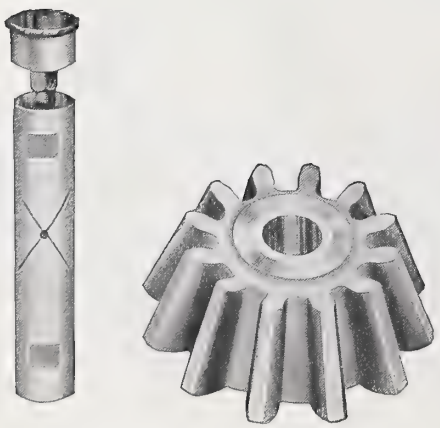


Showing intake side with Carburetor and Magneto

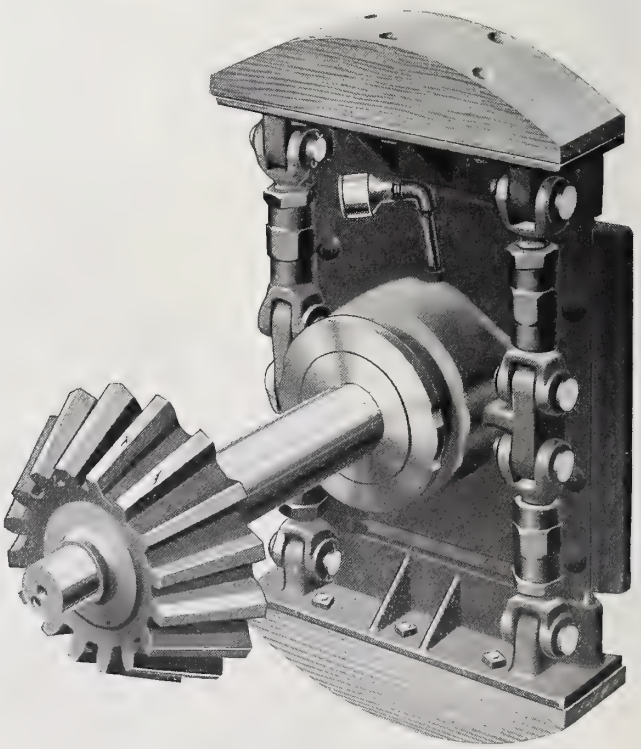


Showing exhaust side with Water Manifold and Inspection Hole Covers

Sawyer-Massey Gas Tractor Compensating Gear. Showing Bevel Pinions and Shaft in place



Pin with Grease Cup.
Bevel Pinion with Bronze Bushing

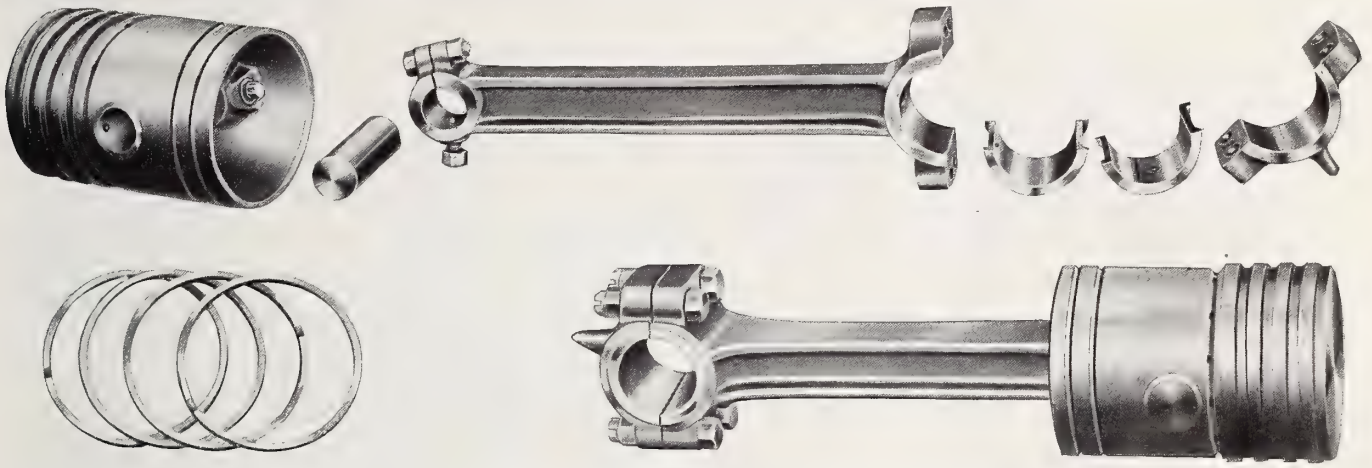


Sawyer-Massey Gas Tractor Clutch.
Complete with Shaft and Bevel Pinion

COMPENSATING GEAR. The compensating gear is of the 4-pinion type lubricated by a compression grease cup at the end of the shaft. One particularly good feature of this gear is that the rim is separate and is bolted to the centre casting that carries the bevel pinions. In the event that the gear should need replacement through the breaking of a tooth, all that is necessary is the replacement of the rim. Cut gear patterns are used in making all gears, which insures perfect uniformity.

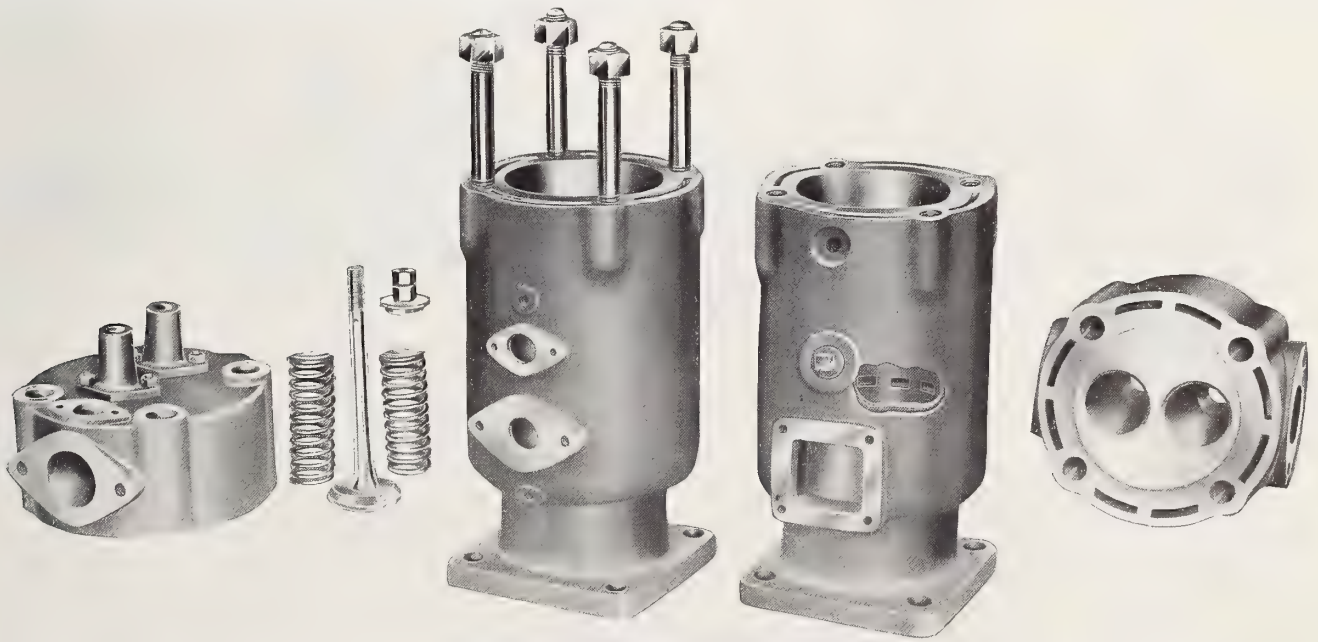
CONNECTING RODS. These are of I-beam type, 18 inches between centres with bearings on crank-shaft $2\frac{3}{4}$ x $3\frac{1}{2}$. All connecting rod bearings are die cast and are adjustable. The lower half of each connecting rod bearing has an oil dasher which splashes the oil on the bearings requiring it.

A source of trouble in ordinary gas engines is in the connecting rod caps, which have a tendency to break loose from their bolts. This tendency is prevented in the Sawyer-Massey Gas Engine by the use of castle nuts, which are held in place with split keys, thus precluding any possibility of trouble from this source.



Sawyer-Massey Gas Tractor Piston
Also showing Piston, Rings, Pin, Connecting Rod and Cap with Die Cast Babbitted Bearings before assembling.

COOLING SYSTEM. The cooling system is unique in that it consumes very little water. The method used is the result of considerable experimenting. There are 252 $\frac{5}{8}$-inch seamless brass tubes, 32 inches long, used in the form of a radiator, and a large centrifugal pump circulates the water around the cylinders and through the radiator. It takes but 30 gallons of water to fill the whole system. The radiator is cooled with a 30-inch fan at its back, driven by a belt from pump shaft. The efficiency of the system is clearly demonstrated in cases which have come under our observation when in a run of several days the water in the cooling system was but slightly diminished, and there is practically no loss of water through condensation. The Sawyer-Massey Traction Engine does not require the services of a water team to carry supplies. It is extremely economical with water, and thus saves expense for hauling.

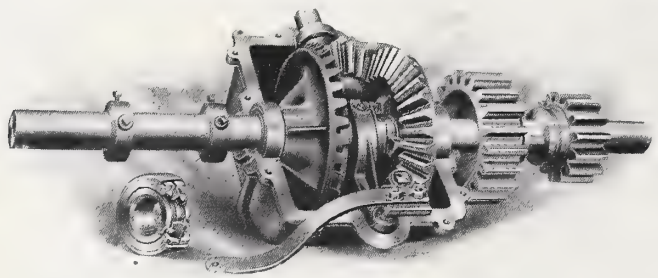


Sawyer-Massey Gas Tractor Cylinder
Showing right and left sides with part cut away to give view of Auxiliary Exhaust Ports. Also Cylinder Heads, Valve, Springs, Cap and Nut

CYLINDERS. The cylinders are made of the best grade of grey iron, cast separately, with removable heads. Any cylinder can be removed without interfering with the others. The bore of the cylinder is ground to a mirror finish. The water jacket completely surrounds the cylinder, and is provided with a removable cover for cleaning.

CYLINDER HEADS. These are separate and are secured to the cylinder by four heavy studs. They contain the valves and are easily removed for grinding the valves or cleaning combustion chamber. The valves are all water jacketed.

COMBUSTION CHAMBER. One of the features which particularly commends the Sawyer-Massey Gas Engine to a discriminating user is that the combustion chamber is not sent out in an unfinished state. There are no side pockets or rough places in the chamber for carbon deposits to collect, consequently the Sawyer-Massey Engine can be relied upon to give a maximum combustion of fuel.



Sawyer-Massey Gas Tractor Bevel Gear Box with Gears in Place
Section Shows Ball Bearings in which Shafting is Carried

VALVES. The valves are of poppet type, made of nickel steel, ground and fitted after being heat treated. They are located in the cylinder head and are mechanically operated by overhead rockers and push rods. A new feature with these valves is the provision of a locknut on the stem, and the insertion of a No. 0 taper pin in the stem, which positively eliminates all chance of damage in the event that the valve should break.

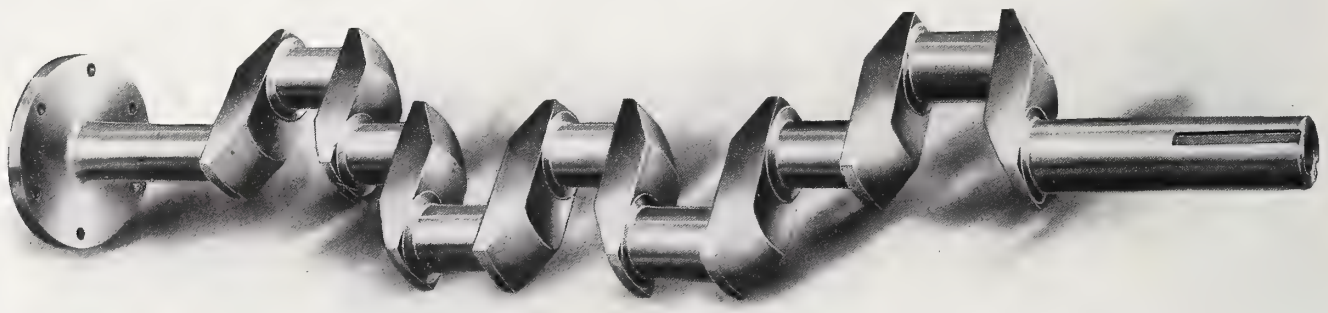
CAMS and CAMSHAFTS. This shaft is 1⅛ inch in diameter and is made in one piece with five individual bronze bearings. It is so constructed that it may be removed by sliding endways from the crank-case. The cams are all hardened and ground and secured to the shaft by a key and two taper pins.

CAMSHAFT GEARING. Machine-cut spur gears of steel are used for camshaft gearing. They run in oil within the crank-case. One feature of the gearing is that it is slotted, in order that the camshaft may be set by loosening four cap screws.

AUXILIARY EXHAUST. In order to protect the valves from excessive heat, we have provided this engine with an auxiliary exhaust, which opens when the engine is at the extreme out-stroke, allowing heated gases to escape before the exhaust valve opens.

This auxiliary exhaust is of the injector type, and will not permit the burnt gases from one cylinder to go into another. It is a decided advance in gas engine construction and preserves the valves longer than any other device.

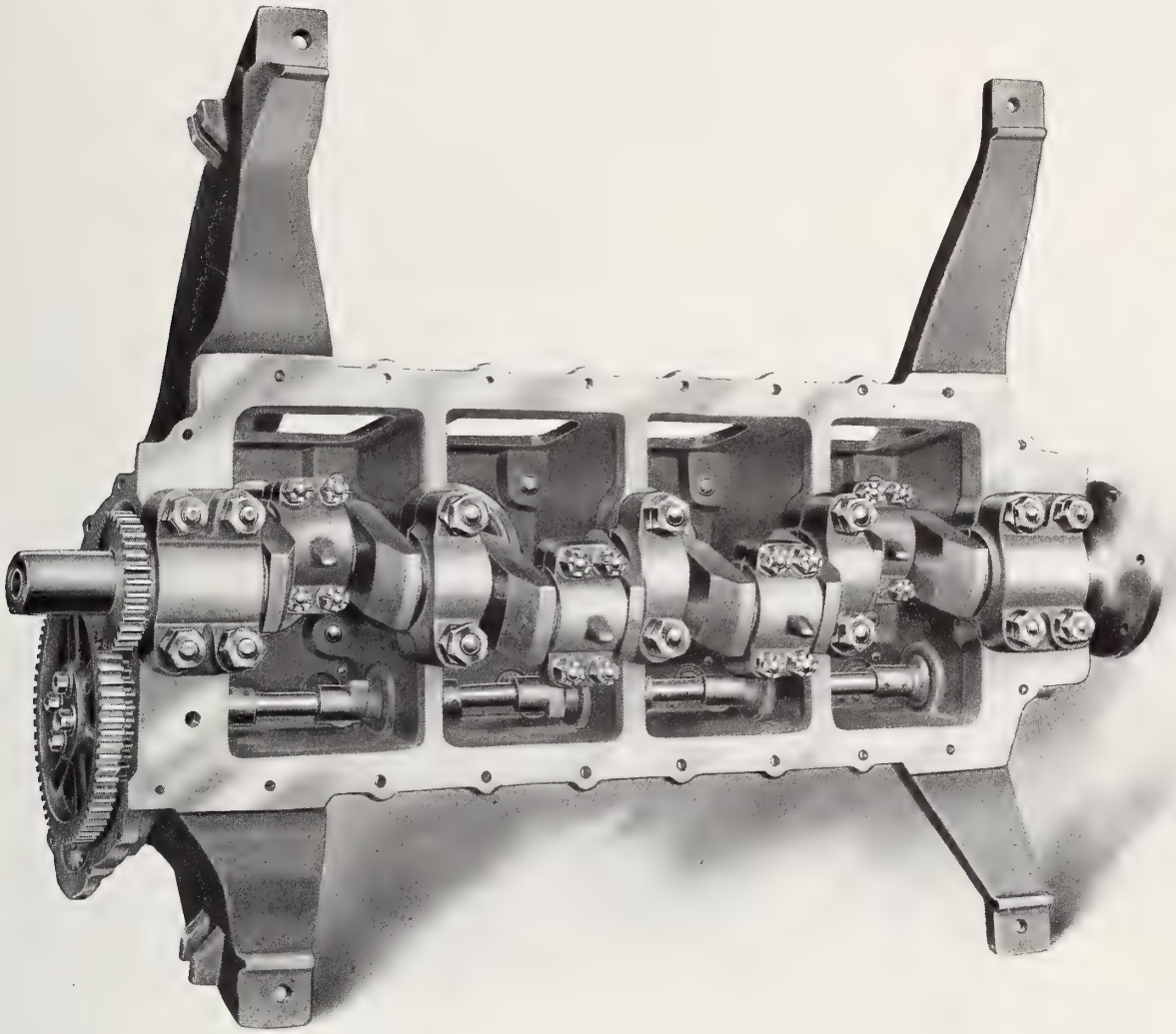
IGNITION. The Sawyer-Massey Gas Traction Engine has a very excellent dual system of high tension ignition, supplied by three double magnet Remy high tension dual system magneto in conjunction with six dry cell batteries for starting. This magneto is covered with a dust and water tight cover, preventing short circuits. The lever for control of the spark is within easy reach of the operator. We supply two sets of spark plugs and an ammeter to test the batteries. The ignition system of the Sawyer-Massey Gas Engine is very simple and thoroughly efficient.



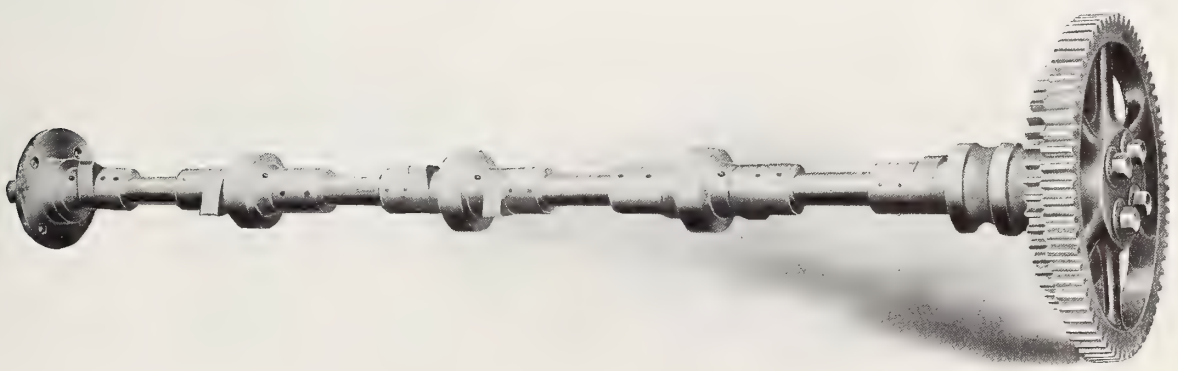
Sawyer-Massey Gas Tractor Crank-Shaft

CARBURETOR. A floating ball type carburetor is supplied which has no spring adjustments to make, and only one regulation to adjust the amount of gas. It is automatic in its control of the mixture for light and heavy loads. We have had excellent service with this carburetor, and believe it to be one of the most satisfactory on the market.

GOVERNOR. The governor is of the centrifugal ball type, which operates the carburetor, and regulates the speed of the engine both on the air and the fuel. It is very positive in its action and allows the engine to run with but little variation. The speed can be varied from 300 to 600 revolutions per minute, and if the load is suddenly released the governor takes care of the engine instantly, at once cutting down the supply of fuel and air, which prevents racing.



Sawyer-Massey Gas Tractor Crank-Case
Under Side Showing Crank-Shaft and Camshaft with Gears in Place



Sawyer-Massey Gas Tractor Camshaft
Showing Cams, Bushings and Gears

LUBRICATION. The lubrication of all bearings is accomplished by means of a gear oil pump which is driven from the camshaft by a noiseless roller chain and draws its oil from a tank through a filter and pumps it into a 10-unit sight feed oiler, which has oil tubes running to crank-shaft bearings, magneto gears and cylinders.

A constant oil level is maintained in the crank-case into which the connecting rods dip, and the overflow runs back into an oil tank. The height of the oil in the crank-case can be adjusted from the outside. The piston, camshaft, rollers and plungers are oiled by the splash method from an oil pan in the base. Other bearings on the Tractor are oiled by means of compression grease cups.

SAWYER MASSEY

Specifications Sawyer-Massey Gold Medal Gas Tractor

HORSE-POWER—Rated 25 nominal, 45 brake horse-power. Actually develops as high as 58.3 B.H.P. (Winnipeg Plowing Contest, 1913).

SPEED—Two forward speeds: for plowing, etc., 2 miles per hour; for hauling and road work, 3½ miles per hour.

MOTOR—Vertical, four cylinders, cast separately, with removable heads and water-jacketed, 6¼-inch bore, 8-inch stroke. Normal speed, 500 to 600 R.P.M.

TANK CAPACITY—Gasoline, 37 gallons, with filter provided. Portable steel storage tank of 434 Imp. Gallons capacity can be supplied.

CONTROL-MOTOR—Clutch and Reverse Levers on right side of driving platform; Gear and Brake Levers on left side. Speed and spark control levers in easy reach of operator.

PULLEY—36 inches diameter with 10-inch face; speed, 250 to 300 R.P.M.

TRANSMISSION—Bevel gear to first cross shaft and spur gears to rear road wheels.

CLUTCH—Friction; two-shoe expansion type, self-locking.

IGNITION—Dual system, batteries and Remy magneto.

CARBURETOR—Kingston floating ball.

OILING—10-unit sight-feed lubricator, with gear pump; supplies crank-shaft bearings, camshaft gears and cylinders. Splash lubrication for connecting rods.

BEARINGS—Large "New Departure" double-row annular ball bearings used in bevel gear box take both radial and thrust loads. Crank-shaft bearings all die cast, camshaft bearings bronze, main shafts babbitted.

GEARS—Compensating; 4 bevel, pinion type.

VALVES—Poppet of nickel steel, 11/16-inch stem; outside diameter, 3 inches.

GOVERNOR—Centrifugal ball type, giving a regulated speed of 300 to 600 R.P.M.

BRAKE—Band brake on compensating gear.

COOLING SYSTEM—Water cooled, driven by centrifugal pump through large radiator cooled by 30-inch fan from rear; fan driven by belt from pump shaft.

WHEELS—Front, 40 inches in diameter, 12 inches wide; rear, 68 inches in diameter, 30 inches wide. Extensions, 6 and 12 inches wide, can be supplied.

FRAME—9-inch channel steel, 42 inches wide and 14 feet 6 inches long.

STEERING GEAR—Worm and wheel, irreversible.

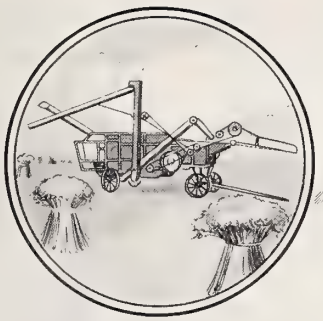
SHAFTING—Camshaft, 1⅛ inches in diameter, 49 inches long; Crank-shaft 2⅝ inches in diameter, drop forged, with cranks 2¾ inches in diameter and 3½ inches long.

AXLES—Front, square, 2½ x 2½ inches and 93 inches long; rear, machine steel, 4½ inches in diameter and 103 inches long.

DIMENSIONS—Wheel base, 125 inches; total length over all, 190 inches; height over all, 10 feet 4 inches; extreme width, 108 inches.

WEIGHT—Complete, with tanks filled, 17,500 lbs. 12,800 lbs. on rear wheels.

EQUIPMENT—Complete set of drop forged wrenches, box wrenches, combination wrench, cold chisel, oil cans, 10 mud hooks, two sets of spark plugs, ammeter.



THRESHERS

Tested Product of Experience

For more than seventy-seven years we have been building and perfecting threshing machinery. The results of this more than three-quarters of a century manifest themselves in our product—in design, quality of materials selected and used, and the skill of our workmen.

When you go into the market to purchase a thresher, you must take into consideration the ability of the machine to do the required work—in a word—its **efficiency.**

The thresher you buy must **thresh all of the grain out of the head.** If this is not done thoroughly, the grain cannot be separated.

Then there must be **complete separation of the grain from the straw.**

More than this, the **grain must be cleaned thoroughly.**

Sawyer-Massey Threshers respond fully to these essential and vital requirements. The pages that follow present illustrations and descriptions of these machines. You are asked to review these, and to take note of many of the points of excellence of these premier threshers.

The "Great West"—The Premier Thresher of Canada

This Sawyer-Massey Thresher, as the name indicates, is especially adapted to meet the requirements of the large grain producers in the Great Canadian West. It is the premier thresher where machines of large capacity are desired and required.

SIZES. The Sawyer-Massey "Great West" is manufactured in five sizes:—

25-inch cylinder x 42-inch body.
29-inch cylinder x 50-inch body.
32-inch cylinder x 56-inch body.
36-inch cylinder x 60-inch body.
40-inch cylinder x 64-inch body.

FRAME. This is constructed of hard maple, carefully selected and thoroughly seasoned. It is bound together by strong steel rods extending from the cylinder posts to the rear posts of the separator. As a result, the frame is not only strong, but remarkably rigid.

The weight of the "Great West" is equalized on the front and rear axles, instead of resting largely on rear ones alone. This is the result of the most painstaking and skilled designing. The rear axle is so placed that the weight of the Separator and the Stacker is perfectly balanced on the trucks.

CYLINDER. The "Great West" cylinder (see description, pages 56-57) is of the heavy double-bar type, recognized as superior in machines of large capacity. Both the cylinder and concave teeth are large, and possess superior wearing quality.

WINGED BEATER. A spiked winged beater is placed at the rear of the cylinder in such a position that there is only ¼ inch space between the cylinder teeth and the spikes in the wings. This provision makes it impossible for the cylinder to "backlash." Behind the beater is a hinged steel apron to prevent the straw from shooting to the rear of the machine before being properly agitated.

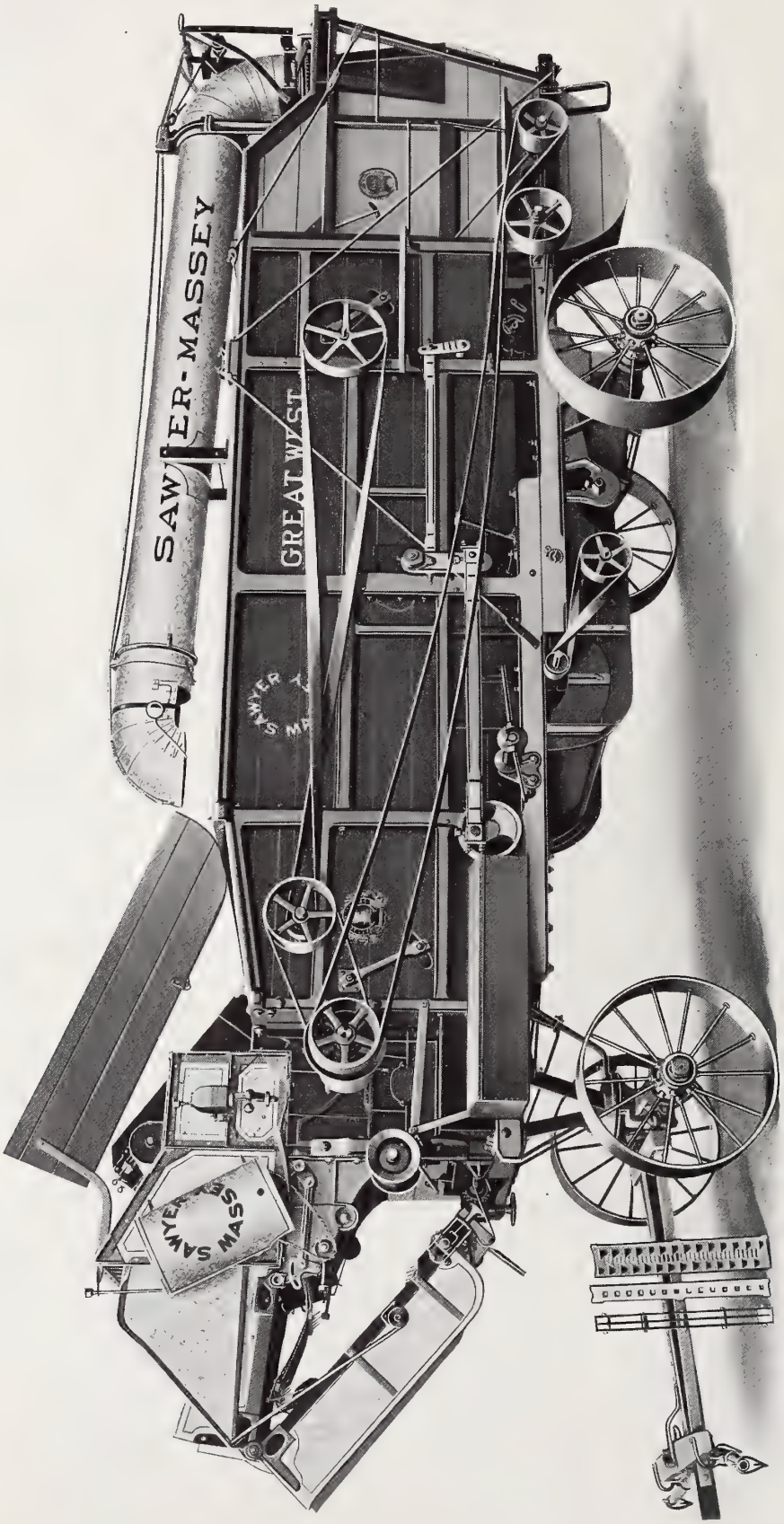
AGITATORS. The Agitators, or shakers (see page 54), in all "Great West" Separators are divided in the centre. The front Agitator is 7 feet 6 inches long, the rear one 6 feet long. The rear end of the front one is so arranged that the straw drops several inches before it reaches the rear agitator. All these decks vary in width in accordance with the size of the body of the machine.

In addition to these two Agitators, over which the straw passes, there is an elevated Agitator over the rear Agitator, which is operated by a six-throw crank. This particular Agitator takes care of the long and rough straw, leaving nothing to be handled by the lower rear Agitator excepting short straws and chaff.

The combined area of the agitating parts of the Great West Separator is, for example, in the 64-inch machine, 95.5 square feet. The sieves in "Great West" Separators are 49½ inches long in all machines, and vary in width in accordance with the width of the machine. For instance, in a 64-inch machine the width of the sieve is approximately 60 inches; all other machines are narrower in proportion to the body of the machine.

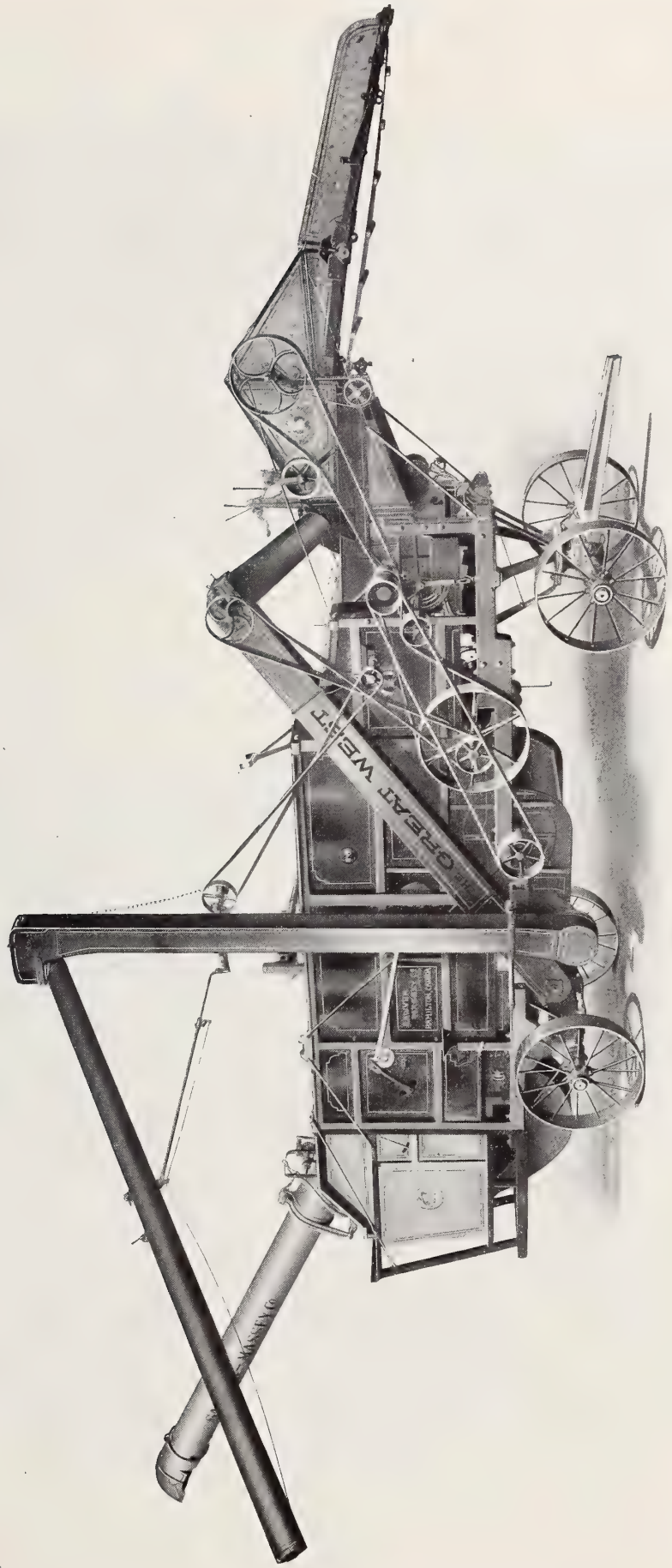
TESTING. Every part that enters into the construction of the "Great West" is thoroughly inspected and tested. But our scrutiny does not stop here. The completed machine is tried out, found to be up to the standard—the Sawyer-Massey Standard—and proven to be ready for perfect service before it leaves the factory.

SAWYER MASSEY



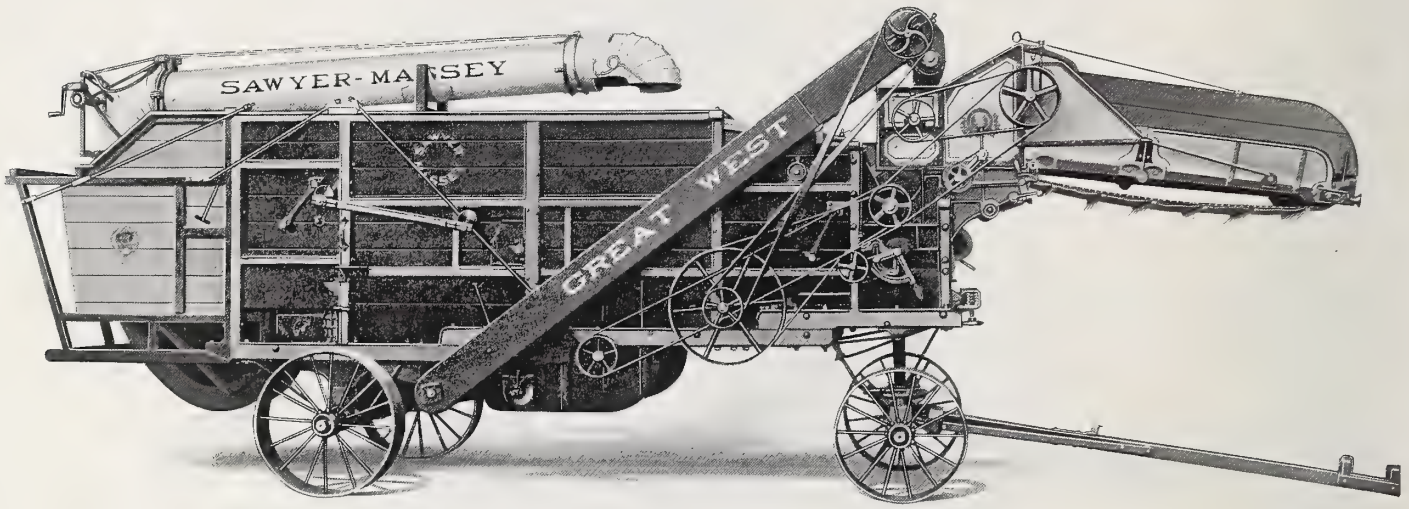
Sawyer-Massey "Great West"—The Premier Thresher of Canada

LORNE J. McRITCHIE
Box 133
ZEALANDIA — SASK.

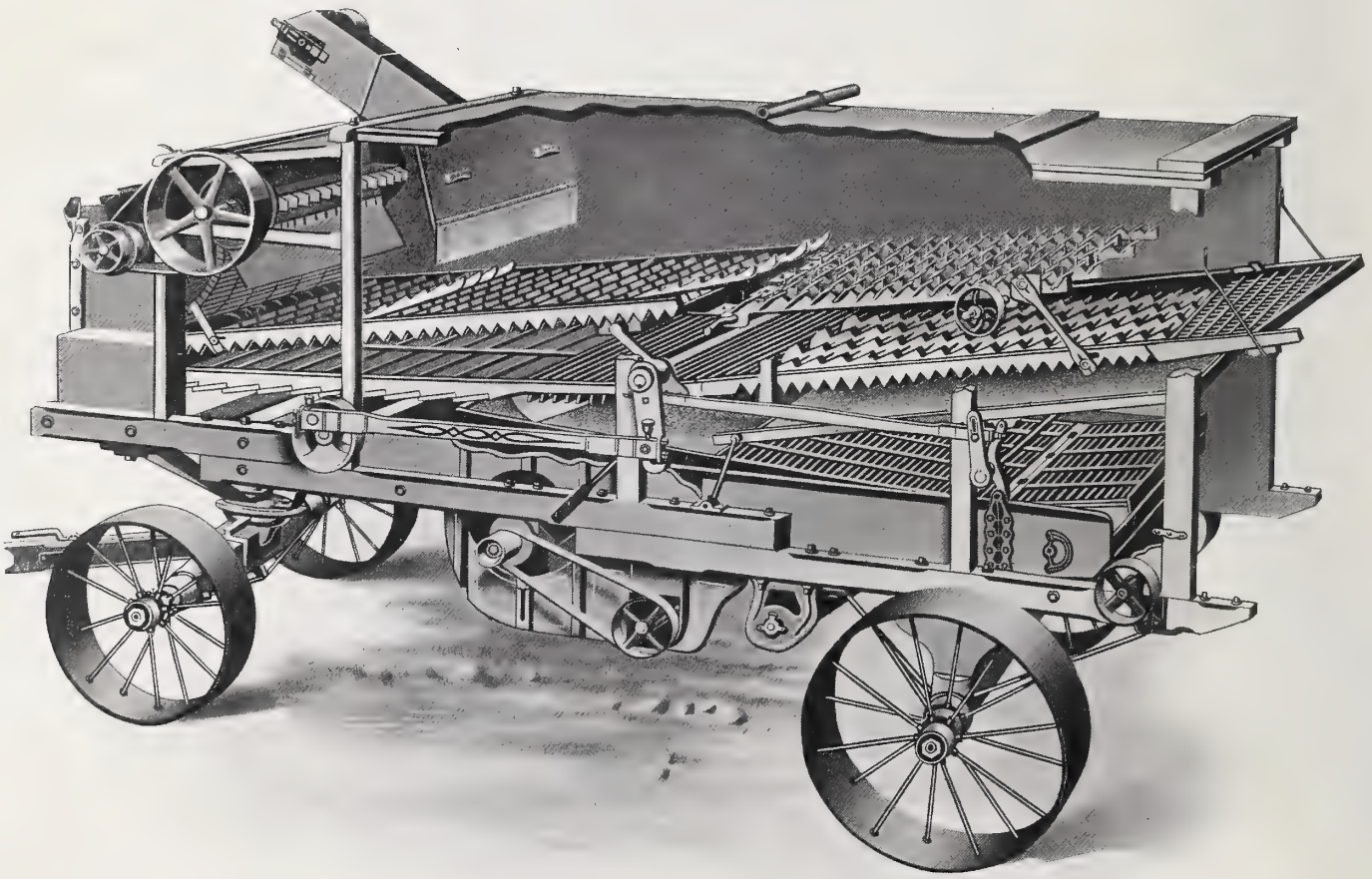


Sawyer-Massey "Great West" Thresher, showing Blower, Single Leg Elevator and Feeder Extended Ready for Operation
(Single Leg Elevators can be supplied in 15 or 18 Feet Lengths)

Sawyer-Massey "Great West" Thresher

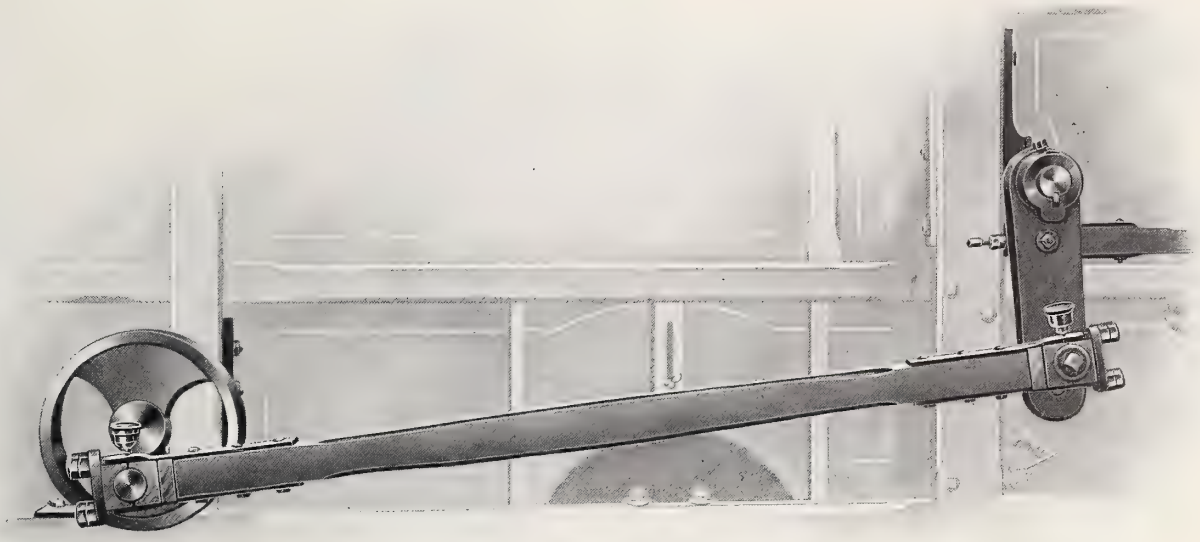


Sawyer-Massey "Great West"



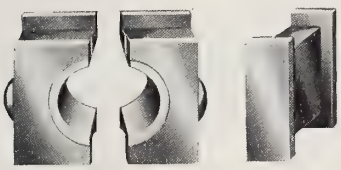
Showing Internal Construction of Sawyer-Massey "Great West" Thresher

"Great West" Pitman

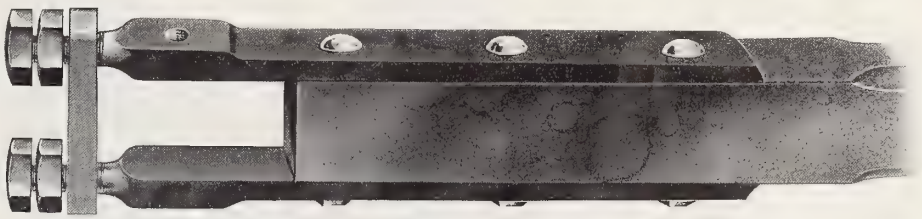


The "Great West" Pitman and boxes are substantial. The principal boxes are held in place by ball joints, preventing any possibility of binding in the bearings. The boxes have extra long babbitted bearings and adjustable screws, to take up the slack.

The Pitman of the "Great West" is of liberal length, with large disc and pin, and long centre rock shaft arm, thus reducing to a minimum the strain on the posts of main frame, on crank and centre rock shafts and their boxes, and on boxes of the Pitman itself, yet conveying strong and effective agitation to the decks.

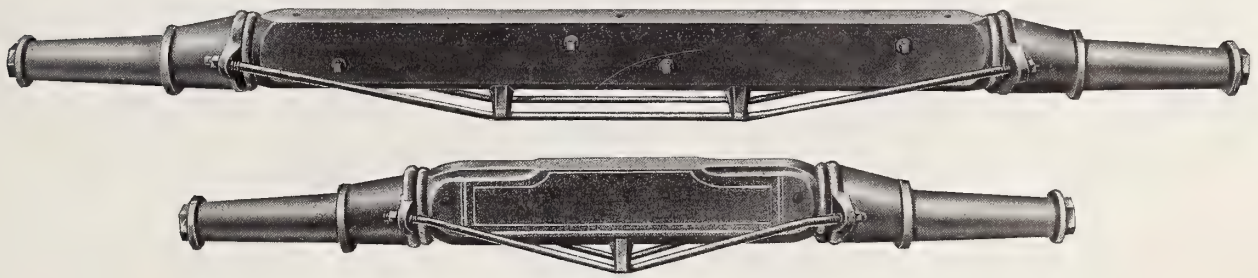


"Great West" Babbitted Pitman Box with Self-Aligning Bearings



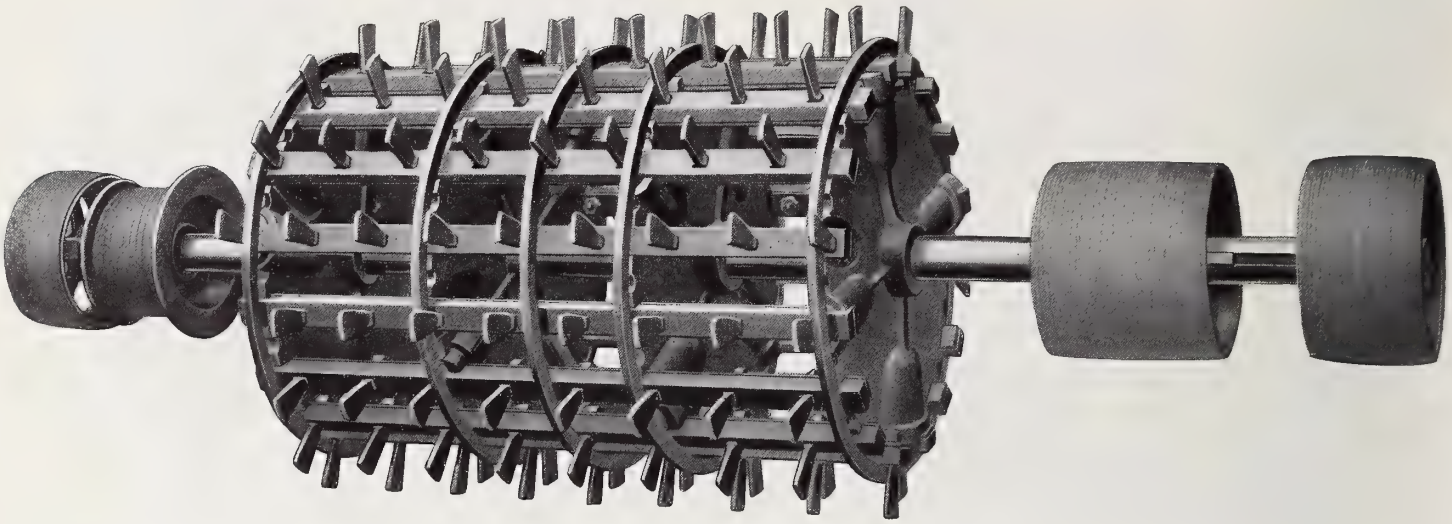
Main Driving Shaft Pitman. Strongly Strapped, Bolted and Double Nutted

"Great West" Axles

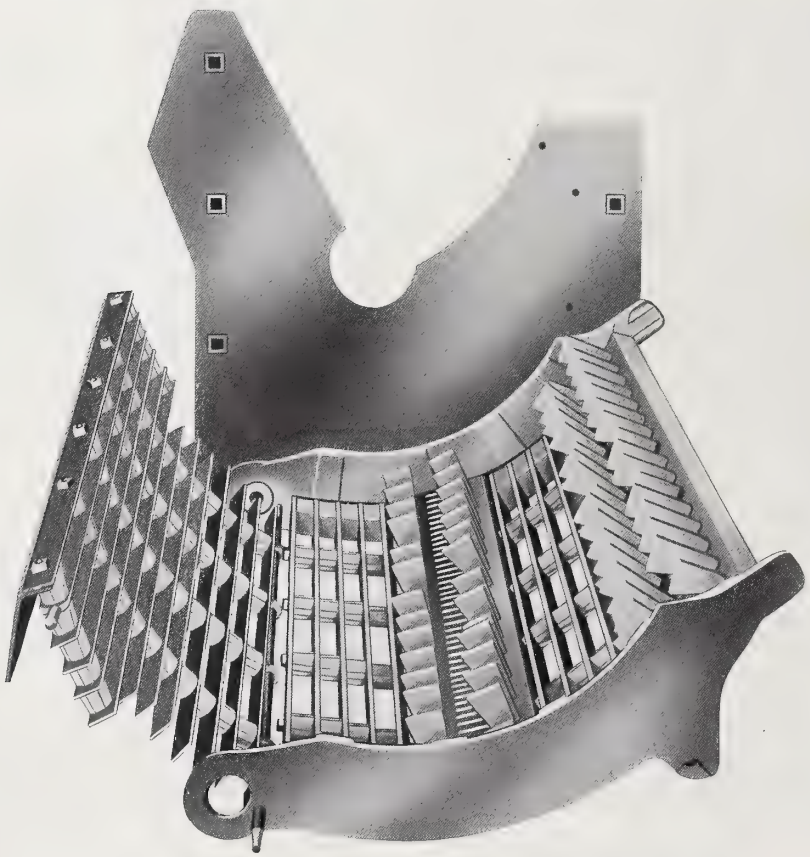


The Trussed Axles of the "Great West" are of the latest type and design.

Sawyer-Massey 16-Bar Cylinder

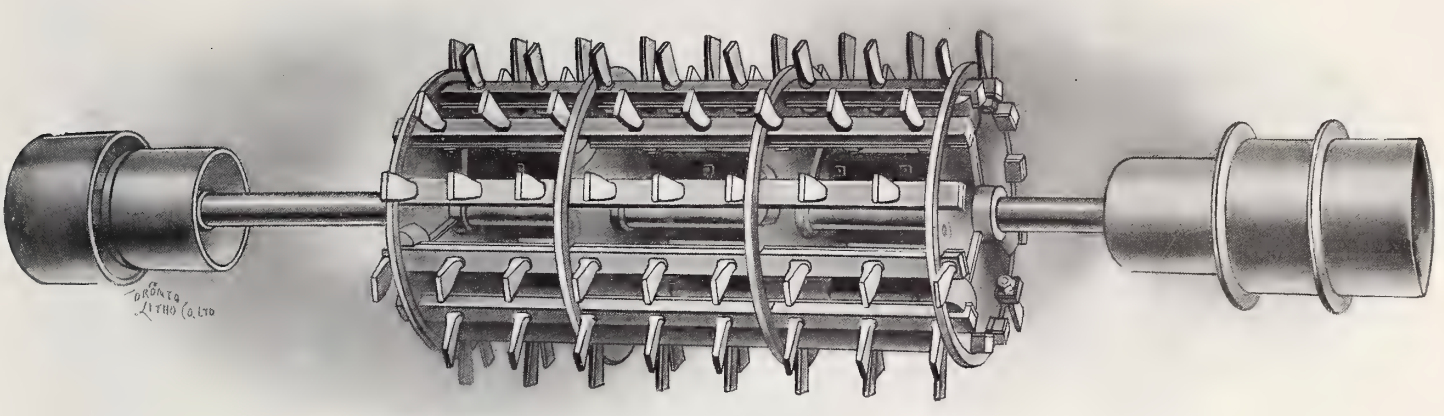


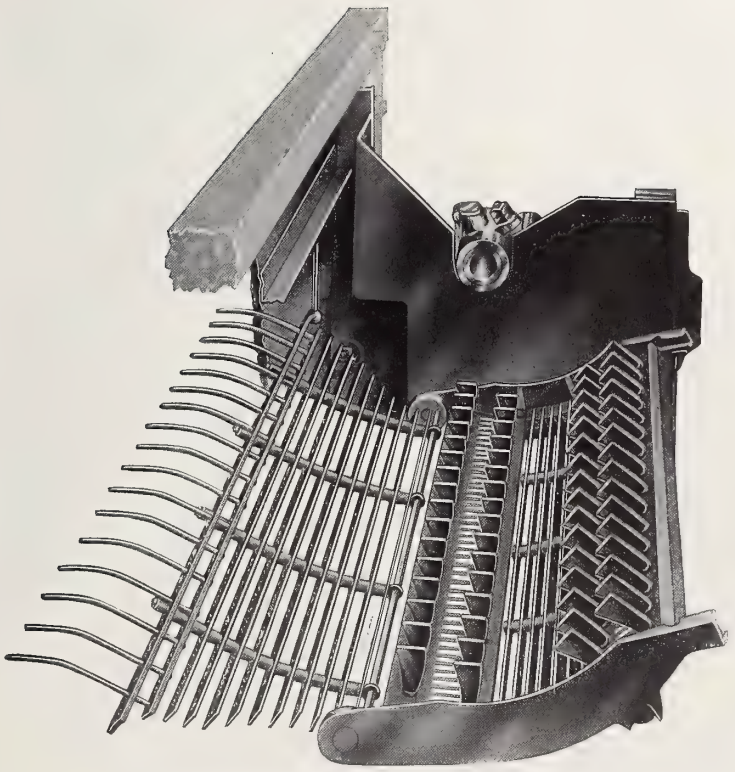
The Sawyer-Massey "Great West" Separators are built with a 16-bar Cylinder. The 16-bar size has been adopted after a series of experiments, extending over a number of years, which prove it to be the most suitable size for a large cylinder and one that gives the best satisfaction. As shown by the illustration, there is sufficient grate surface to insure perfect separation. The large pulleys used on this cylinder give sufficient belt surface to effectively prevent slippage of belts.



Concaves and Grates for 16-Bar Cylinder

Sawyer-Massey 12-Bar Cylinder

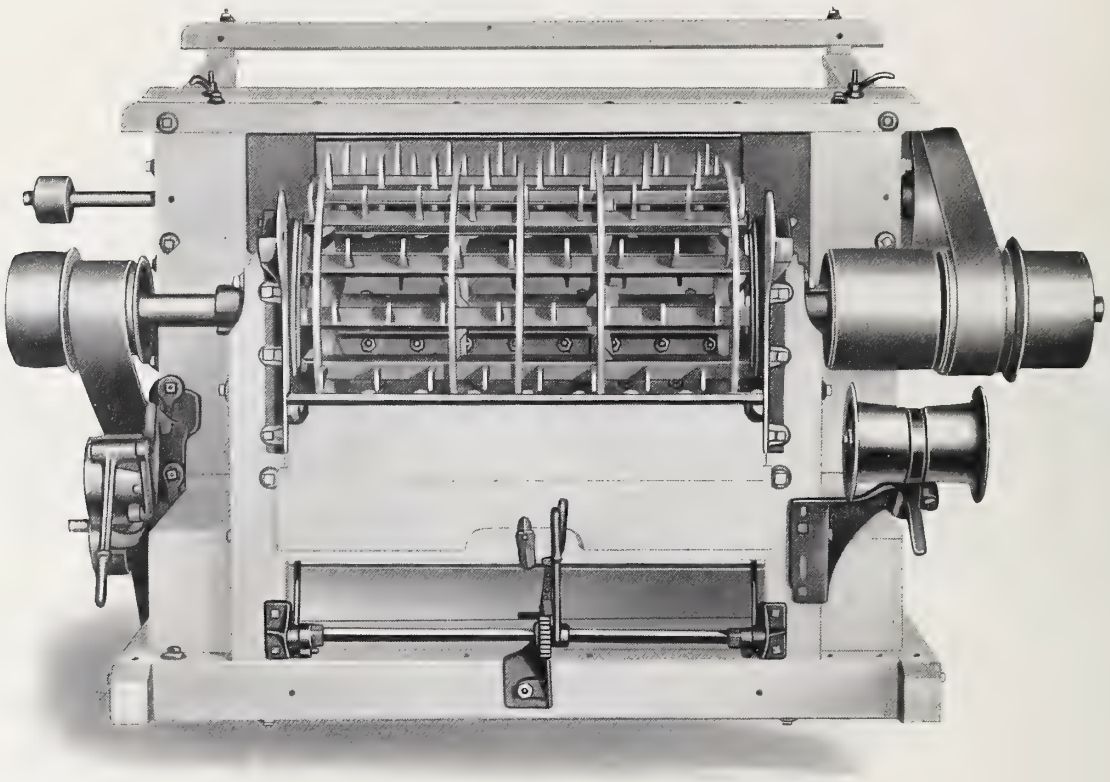




Concaves and Grates for 12-Bar Cylinder

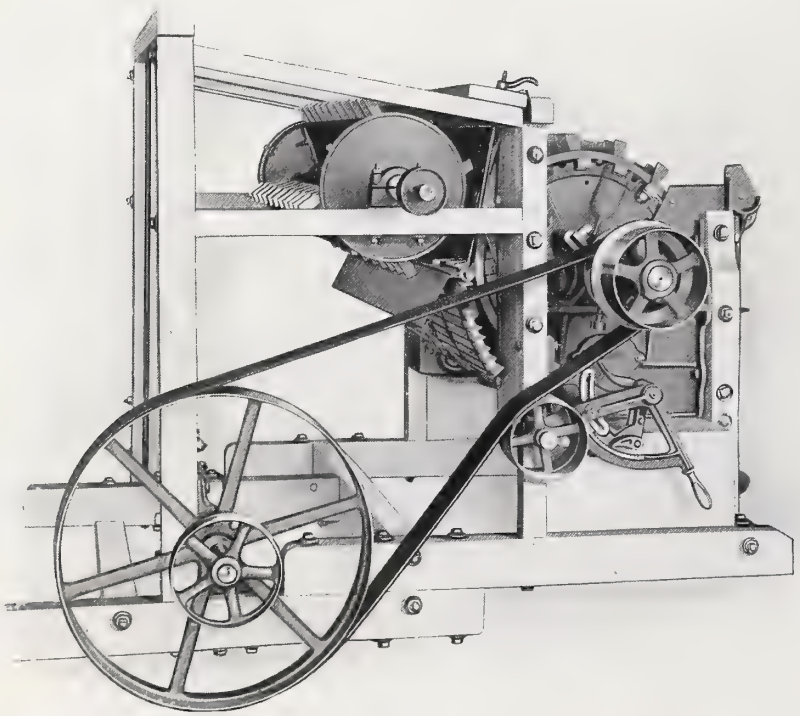
Both the Sawyer-Massey 12 and 16-bar Cylinders are built on the most approved mechanical lines, which accounts for their excellent work in the field. They are strongly made with double bars, and have strong, securely attached teeth, which are so shaped and placed that they pass squarely by the teeth of the concaves, thus stripping the grain from the head in the most approved manner. They do not shear it off as is the case with some cylinders in which this principle has not been carefully considered. The Cylinder Shaft is strong and rigid. The chief weight of the cylinder itself comes at the circumference, giving it a balance-wheel action, which materially assists the straw deck and the other operations in the grain separation, making a final clean-up and saving practically all the grain. **The Cylinder of the "Sawyer-Massey" Thresher is one of its most scientific and creditable features.**

Sawyer-Massey 16-Bar Cylinder



Front View of 16-Double-Bar Cylinder in "Great West" Separator

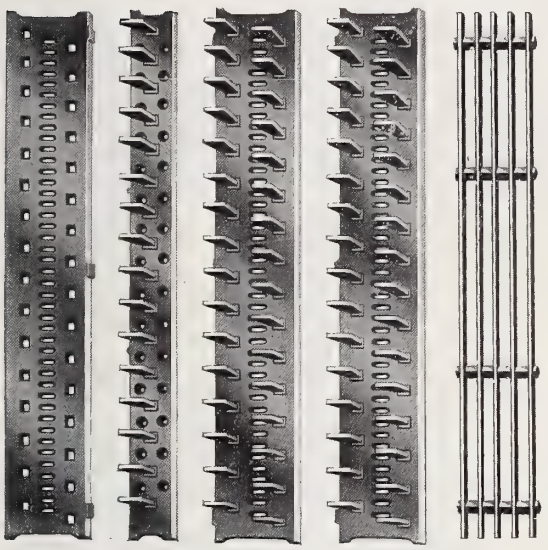
Showing the heavy steel shafts, pulleys of large diameter and width of face, insuring sufficient belt surface to prevent slippage, extra strong frame with heavy metal sides, and belt guide for drive belt.



Side View of 16-Double-Bar Cylinder in "Great West" Separator

Showing great amount of separating grate surface, check plate and combination winged and spiked beater. Note how high the straw travels before being combed with the beater and the great amount of drop it takes before reaching the agitating deck, thus giving an ample opportunity for any loose grain to fall safely to the grain conveyor. Note convenience of belt tightener for agitator belt.

Sawyer-Massey Concaves and Grates

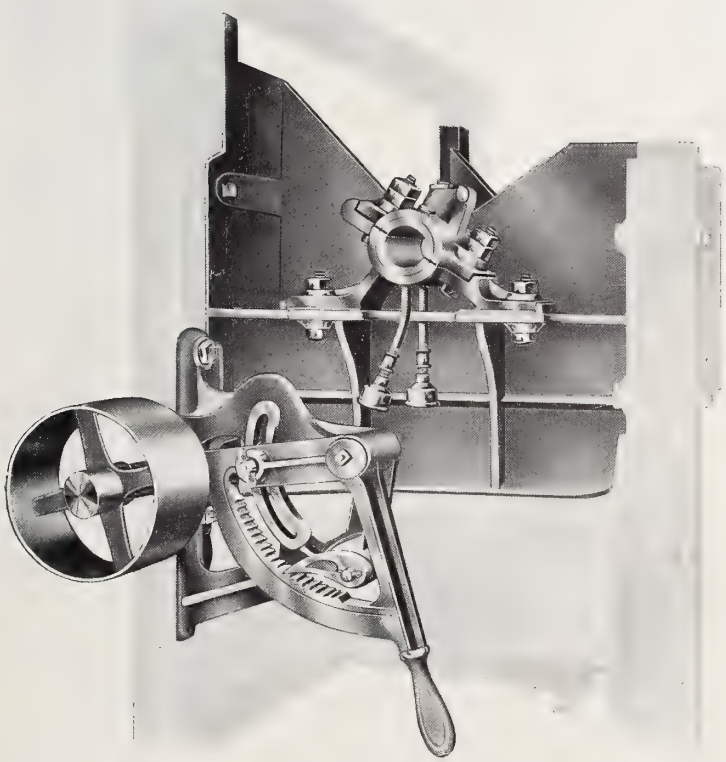


Showing Details of Concaves and Grates

These illustrations of Sawyer-Massey Concaves and Grates, supplied with each "Great West" Thresher, show the large number of combinations that can be made depending on the number of teeth required in the Concaves according to the condition of the grain.

Special attention is directed to the very large grate surface of the "Great West." Observe the large section of grate surface between the Concaves. Note, moreover, the liberal amount of open space throughout the Concaves themselves. These features secure from 90 to 100 per cent. of separation right at the cylinder. The easy putting in or taking out of the Concaves and Grates of the "Great West," the number of changes that can be effected, and the simple and rapid manner in which the distance between them and the cylinder itself can be regulated, while the machine is in motion, to suit all kinds and conditions of grain, are leading points of superiority.

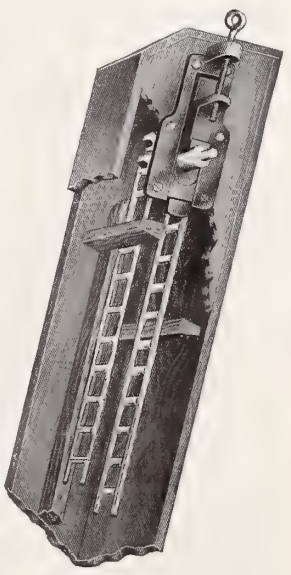
Sawyer-Massey Cylinder Boxes and Belt Tightener



"Great West" Cylinder Boxes and Belt Tightener

The Cylinder Boxes are carefully designed. They are broad, well babbitted and equipped with oilers and grease cups on the bottom, just where needed. The illustration shows how these Boxes are made and placed according to mechanically correct principles.

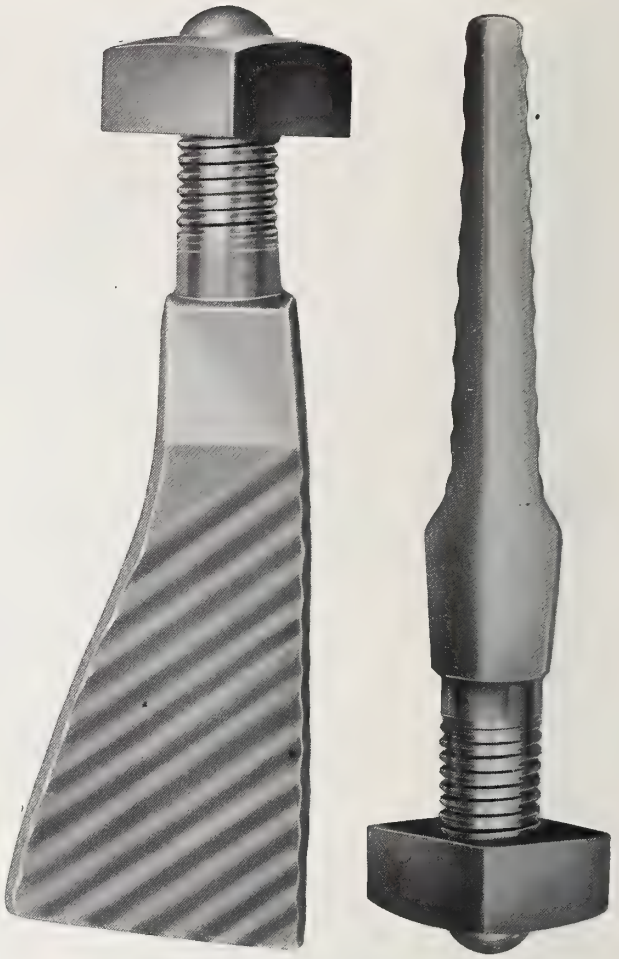
The accompanying cut also shows the patented Belt Tightener used on all "Great West" Threshers. This allows the use of an endless belt for driving Agitators.



TAILINGS ELEVATOR of the "Great West" has a strong sprocket chain belt and steel-covered buckets. The chain belt will not slip or wear out like a leather belt. It can be tightened or slackened instantly by two adjustable screws at top of Elevator. The Elevator is of sufficient length to deliver grain direct into the cylinder with the use of a worm screw to the feeder.

Sawyer-Massey Cylinder and Concave Teeth

Sawyer-Massey "Great West" Cylinder Teeth



Sawyer-Massey Flax Tooth

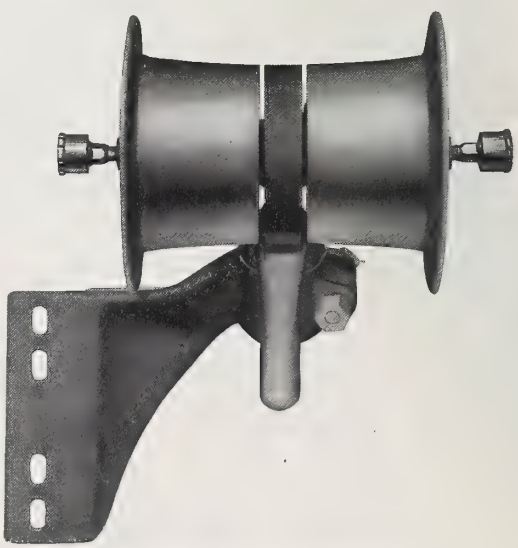
The cuts show exact size, front and side views. The teeth are scientifically designed both as to strength and effectiveness. The formation of the curve gives a good draw to the cylinder and insures the straw being fed in uniformly and steadily.

Special Concave Tooth used in "Great West" Separator when threshing flax. These teeth are supplied on special order.

Sawyer-Massey Belt Guide

When the Sawyer-Massey Belt Guide is used it is not necessary that the engine be in perfect line with the thresher. This is so designed and does its work in such manner as to excel any other similar device.

The flanges are part of the pulley itself. They are so deep and uniform as to overcome the wearing and fraying or rolling of the edges of the belt. They serve as a protection to it. Both sides are carefully balanced to insure a smooth and true rotary action. This Guide is adjustable, to hold the belt well up on the cylinder pulley, thus increasing its surface on the pulley, and consequently greatly increasing its grip. A heavy lever immediately below the pulley enables the Guide to be adjusted conveniently to suit the conditions of the wind. This lever regulates the angle of the Guide, which can be fitted to almost any Separator and give the most gratifying results.



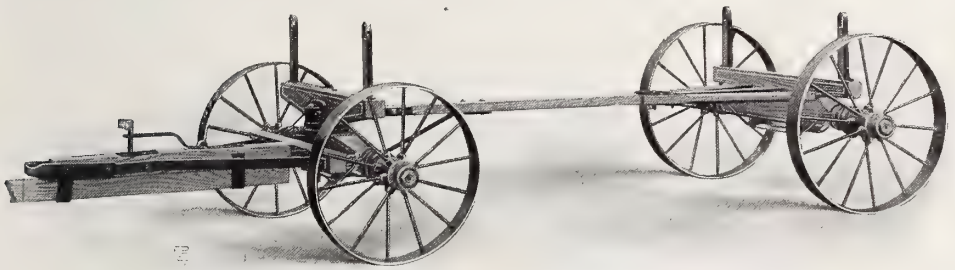
Sawyer-Massey Belt Guide

Sawyer-Massey Water Tank and Truck

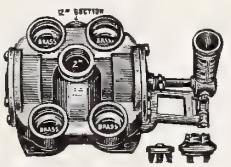
Sawyer-Massey Tank and Bolster Blocks

The Sawyer-Massey Water Tank has a capacity of 375 imperial gallons. It is painted both inside and out, and banded with wrought-iron tension straps to a stiff frame, which forms a rack for fuel, tools, etc. Three inner partitions control the momentum of water when Tank is being moved.

Sawyer-Massey Tanks are made of good lumber, and are in every way superior and more serviceable than metal tanks.

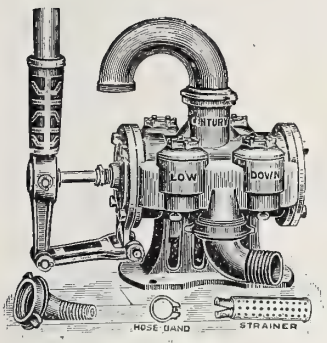


Sawyer-Massey Truck
Strong and Serviceable for General Farm Work



Top View of New Model Pump

Showing the caps and valves removed. Also shows the large open ports or water-ways



THE NEW MODEL PUMP

Sawyer-Massey Tank and Truck Complete

Sawyer-Massey Portable Storage Gasoline Tank

Capacity: 434 imperial gallons.

Dimensions: 10 ft. long, 36 in. diameter, No. 10 gauge steel.

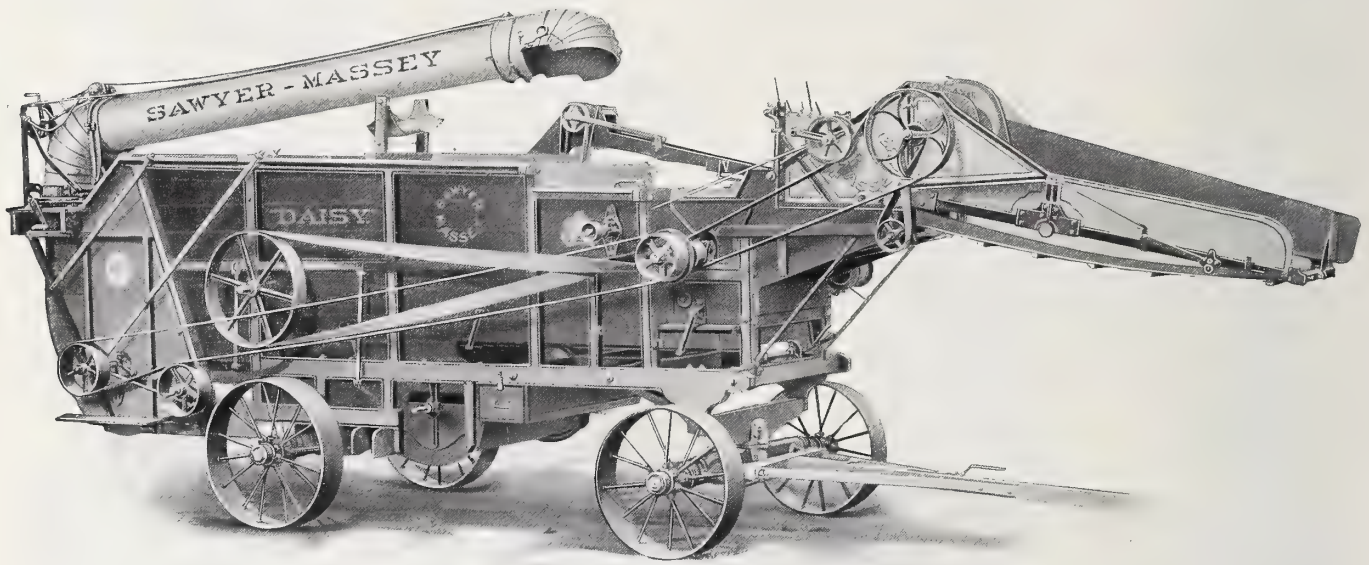
Fully equipped and furnished with spring seat, foot-rest, manhole, stand for pump, rear platform, flanges and necessary holes for attaching Gasoline pump—as well as ordinary water tank pump.

Side Boards on top for convenience in carrying supplies.

Can be fitted on Sawyer-Massey Standard Steel Truck or any ordinary farm wagon.

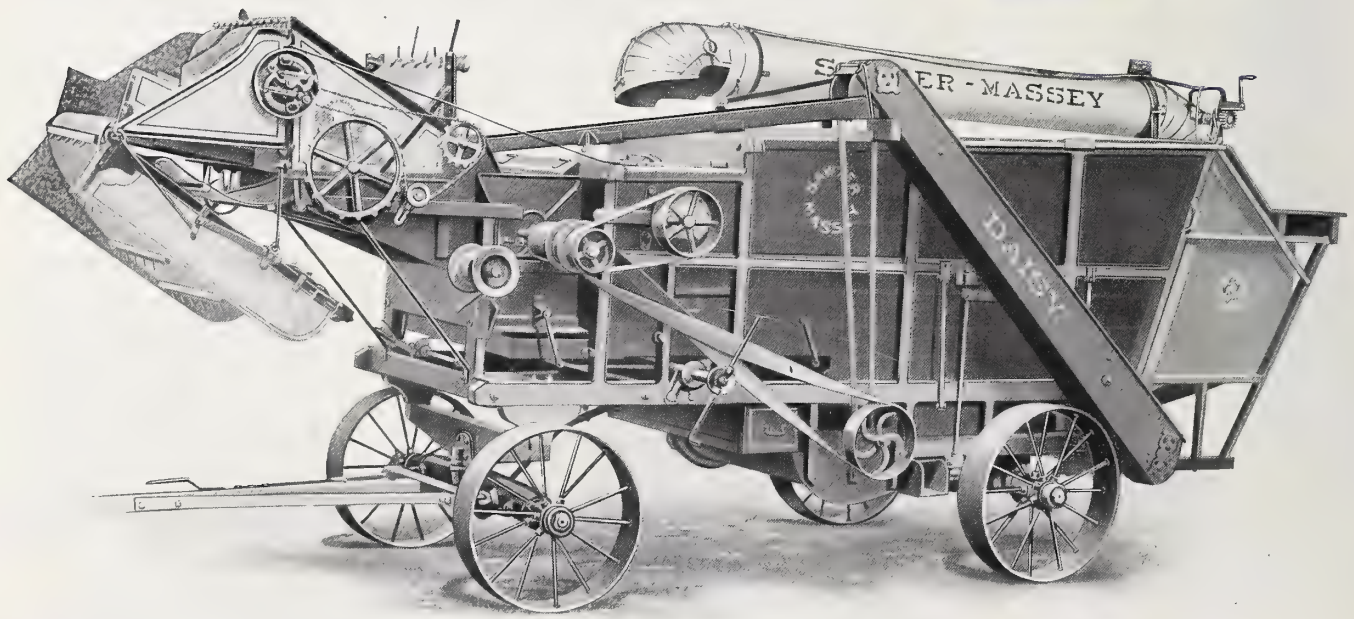
Sawyer-Massey "Daisy" Thresher

The Most Popular Thresher in the Market for Small Steam Power or Gas Engine



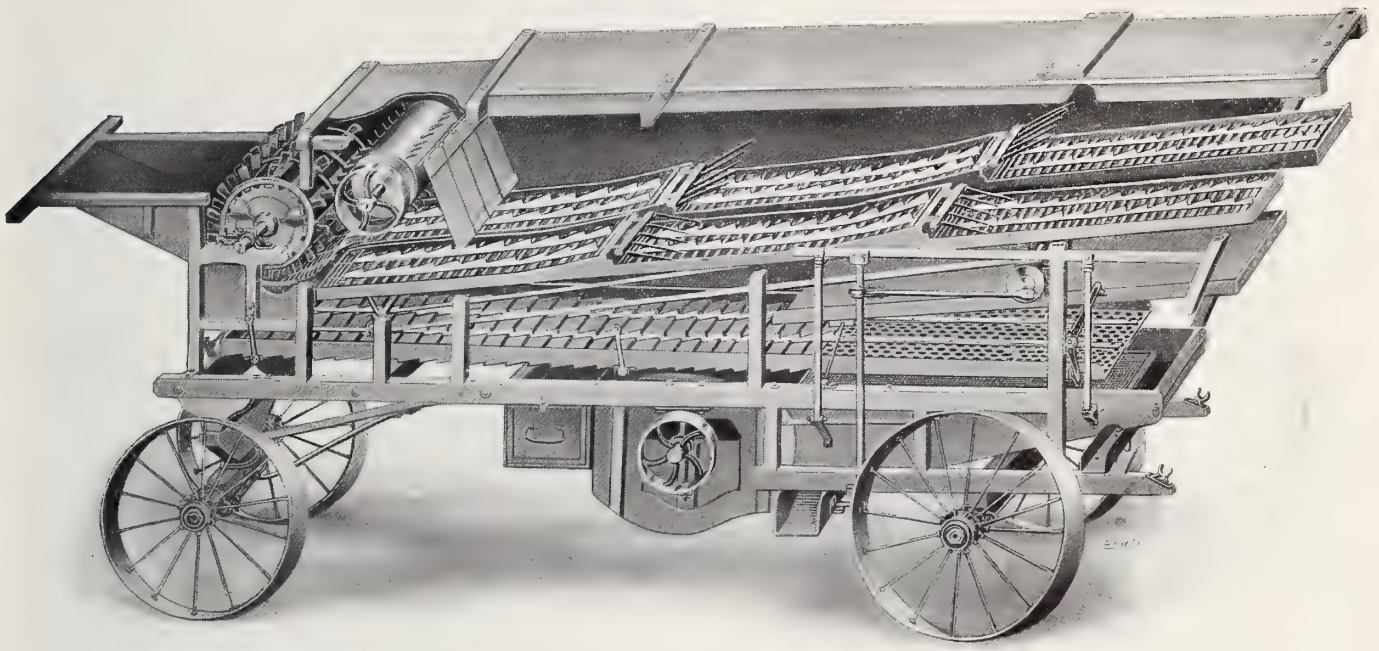
Left View of Sawyer-Massey "Daisy" Thresher, with Blower and Feeder

LORNE J. McRITCHIE
Box 138
TEALANDIA — SASK.



Right View of Sawyer-Massey "Daisy" Thresher

Sawyer-Massey "Daisy" Thresher



Showing Interior Construction and Position of Parts

The Sawyer-Massey "Daisy" is generally regarded as a leader in its class, being the most popular thresher to-day for use with small steam power or gas engine. Nothing has been overlooked that will add to the efficiency of this favorite among farmers and threshermen.

SIZES The "Daisy" is built in two sizes: 29-inch cylinder, 44-inch body; and 32-inch cylinder, 50-inch body. The cylinder is built with nine heavy bars with lock washers on the teeth to prevent them from getting loose, coming out or rattling.

CYLINDER The cylinder shaft is 2⅛ inches in diameter. The cylinder shaft boxes are the same style as in all of the "Great West" line. Two hard oil or compression grease cups are conveniently placed in each of these boxes, in addition to the receptacle for soft oil and waste.

CYLINDER EASILY REMOVED The cylinder frame and boxes are so designed and built that the cylinder can be taken out without the feeder being removed. A specially designed steel division check-plate is placed between the cylinder and the beater. The position of the beater should be noted in the illustration above. This, and that of the grate surface behind the concaves, is the most advantageous for the most efficient work. Here our experience in thresher building asserts itself.

The concaves can be adjusted quickly and conveniently. This is a distinct advantage. A great variation on the number of teeth brought into proper relation to the cylinder to meet different conditions, can be readily effected and with comparative ease.

All the pulleys are of sufficient diameter and width to insure good belt service. This prevents loss of power and is conducive to perfect and easy running.

A POPULAR THRESHER The popularity of this thresher is due to its efficiency and general practicability. The body is large enough to take care of all straw passing through, so there is no danger of trouble in choking to delay operation and cause loss.

Tell your requirements to any Sawyer-Massey agent, or write us, and we will quickly advise which of the two sizes is best adapted for your use, and give any further information about this thresher that you may desire. If you require a machine of either size, you cannot make a better purchase, search the continent over. If some other Sawyer-Massey model will suit your needs better, we will be frank in telling you so.

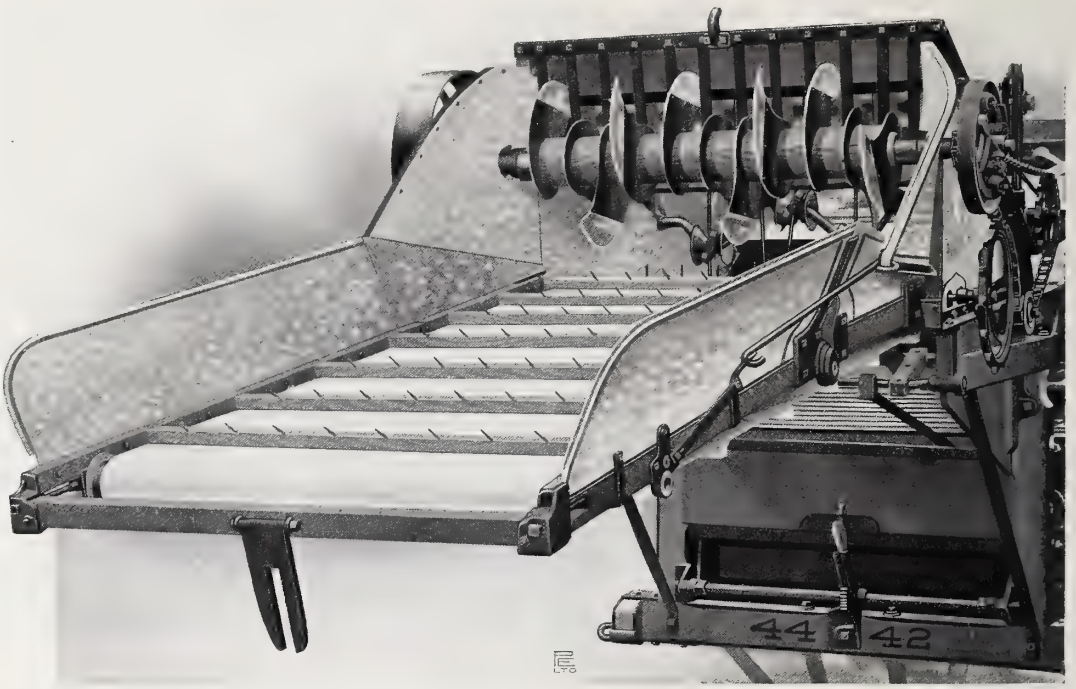
The Sawyer-Massey Feeder, No. 1

The Sawyer-Massey Feeder, No. 1, is built throughout of steel and is sufficiently strong to withstand all necessary strain without the use of braces or trusses. It is pleasing in general appearance and sets a high standard of excellence.

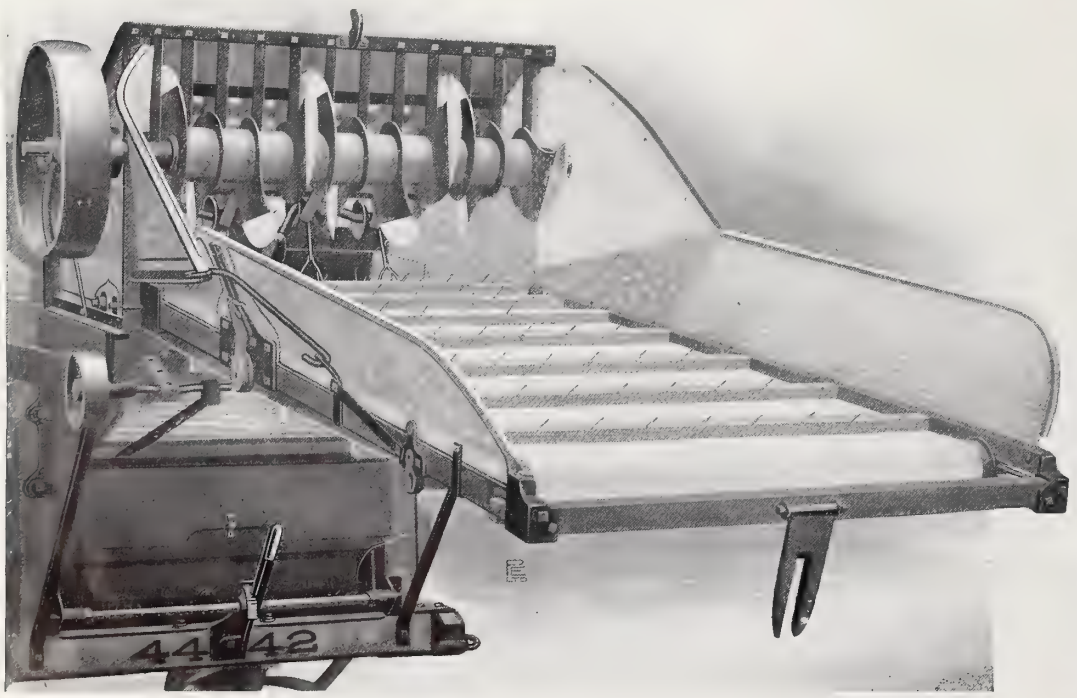
GOVERNOR. The governor is a perfect feed regulator and absolutely controls the amount of grain passing to the cylinder under all conditions. It is strong and simple in mechanism, and does not get out of order.

BOXES. The boxes on the fork-shaft are designed with a special coneshape, which will not allow wet straw to wind.

KNIVES. The patent rotary bandknives are the best and surest cutting knives in use, and are readily removable.



FEED PAN—The short galvanized feed pan is driven by belt and crank-shaft and delivers the grain high up on the cylinder, an advantage quickly recognized by experienced threshermen.



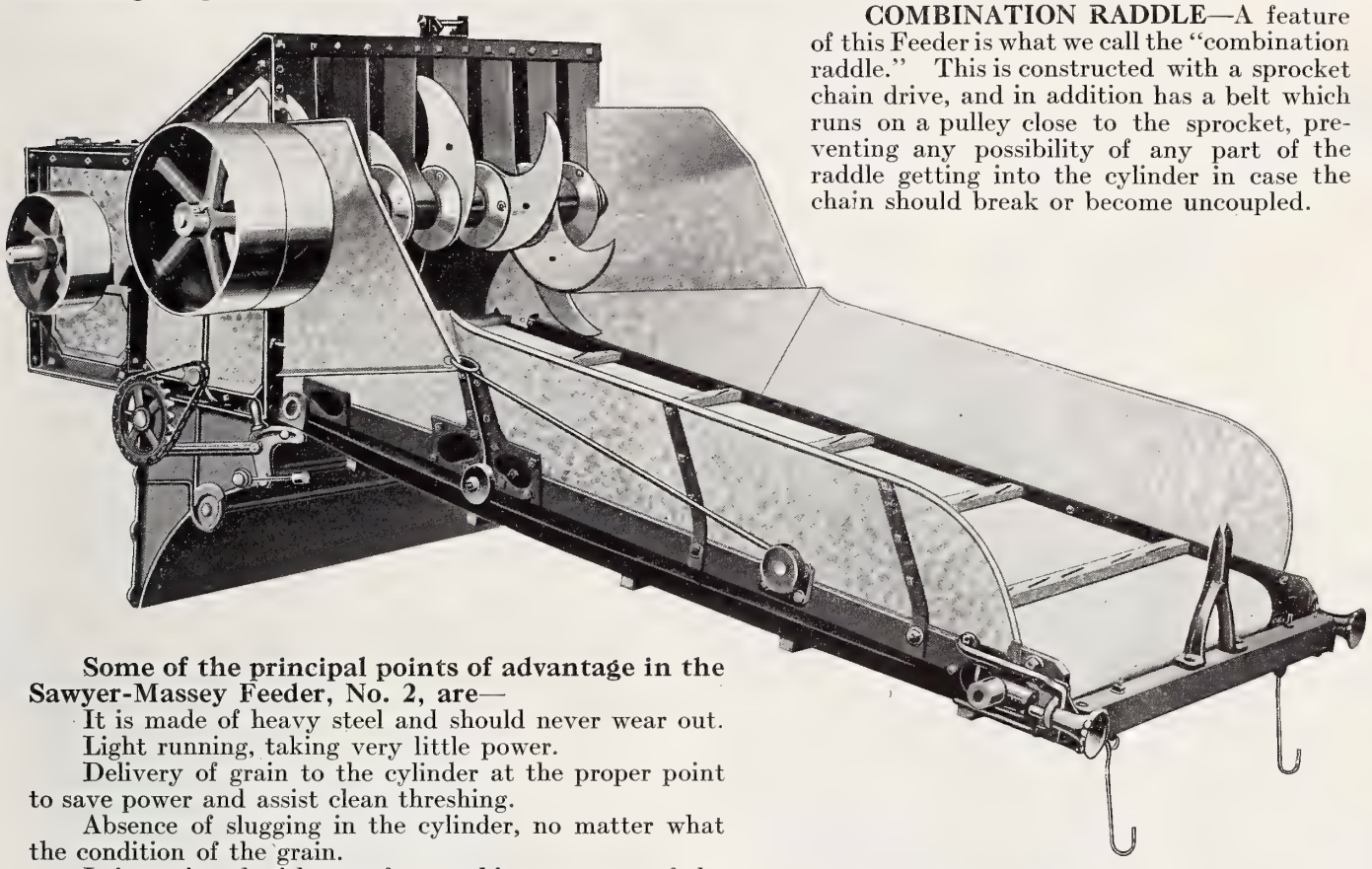
RADDLE PULLEYS. The Raddle pulleys are large and have liberal face, giving the raddle ample grippage.

OPERATION. The Sawyer-Massey Feeder is constructed to run with strong, smooth and almost noiseless action, and does its work in the most perfect manner. Each Feeder is equipped with an extra sprocket for use where greater speed is desired.

The exchange of slow and fast speed sprockets simply means the loosening and tightening of a set screw on the governor drive shaft.

The Sawyer-Massey Feeder, No. 2

The Sawyer-Massey Feeder, No. 2, is built of steel in 28, 32, 36 and 40-inch sizes. This Feeder has been in use during the past two seasons and has given uniform satisfaction.



COMBINATION RADDLE—A feature of this Feeder is what we call the "combination raddle." This is constructed with a sprocket chain drive, and in addition has a belt which runs on a pulley close to the sprocket, preventing any possibility of any part of the raddle getting into the cylinder in case the chain should break or become uncoupled.

Some of the principal points of advantage in the Sawyer-Massey Feeder, No. 2, are—

It is made of heavy steel and should never wear out.

Light running, taking very little power.

Delivery of grain to the cylinder at the proper point to save power and assist clean threshing.

Absence of slugging in the cylinder, no matter what the condition of the grain.

It is equipped with a perfect working governor of the Pickering type.

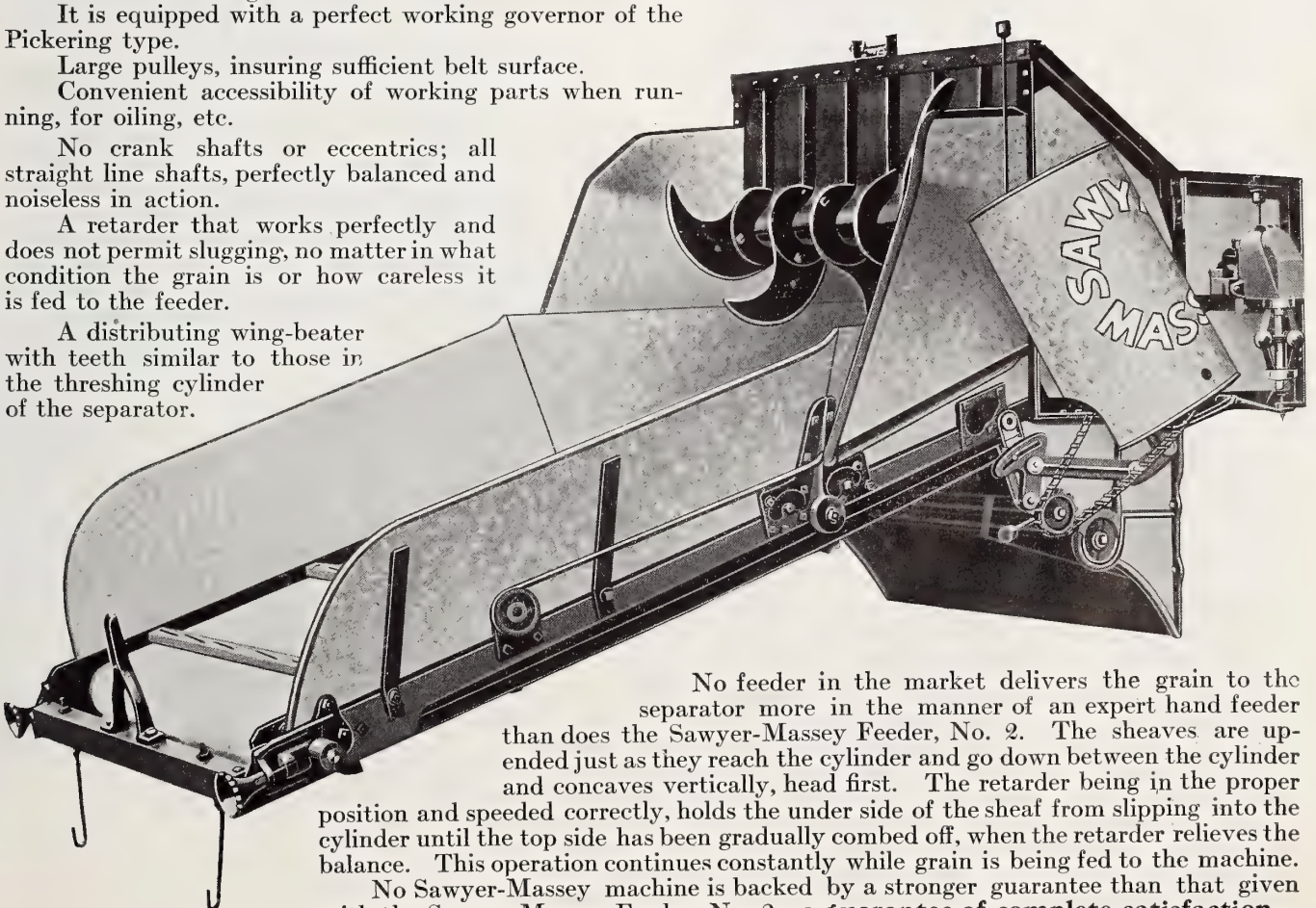
Large pulleys, insuring sufficient belt surface.

Convenient accessibility of working parts when running, for oiling, etc.

No crank shafts or eccentrics; all straight line shafts, perfectly balanced and noiseless in action.

A retarder that works perfectly and does not permit slugging, no matter in what condition the grain is or how careless it is fed to the feeder.

A distributing wing-beater with teeth similar to those in the threshing cylinder of the separator.



No feeder in the market delivers the grain to the separator more in the manner of an expert hand feeder than does the Sawyer-Massey Feeder, No. 2. The sheaves are upended just as they reach the cylinder and go down between the cylinder and concaves vertically, head first. The retarder being in the proper position and speeded correctly, holds the under side of the sheaf from slipping into the cylinder until the top side has been gradually combed off, when the retarder relieves the balance. This operation continues constantly while grain is being fed to the machine.

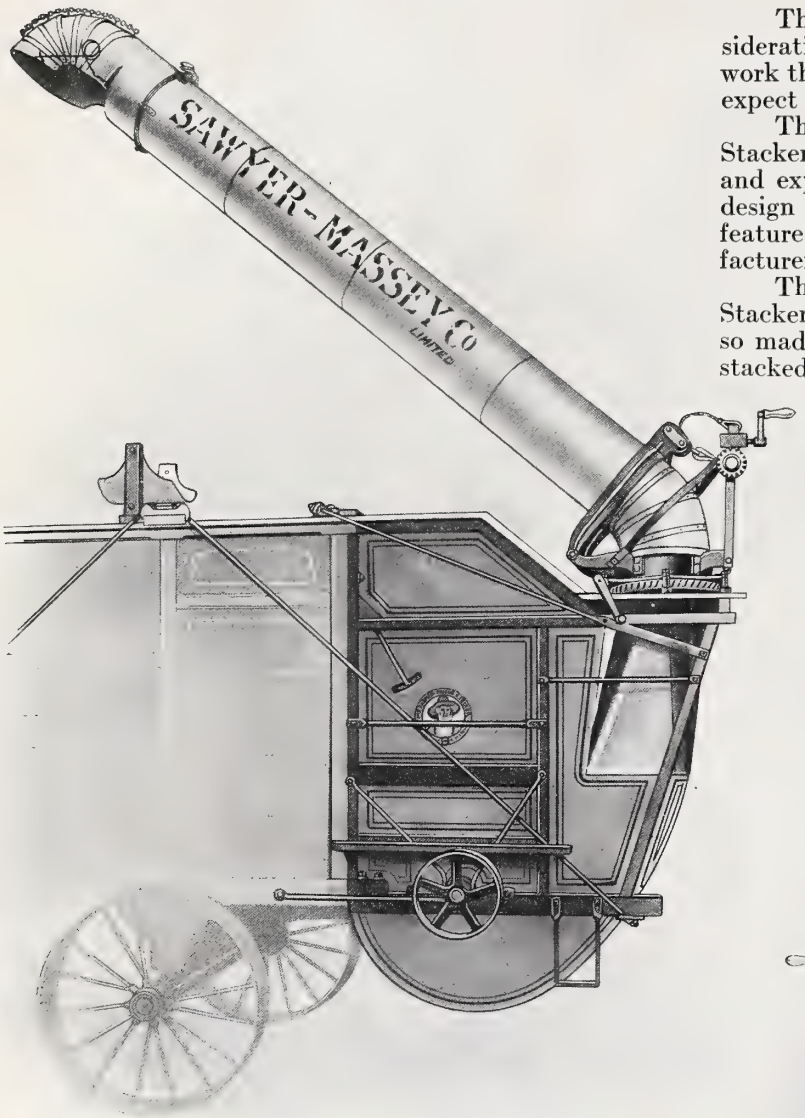
No Sawyer-Massey machine is backed by a stronger guarantee than that given with the Sawyer-Massey Feeder, No. 2—**a guarantee of complete satisfaction.**

The Sawyer-Massey Gearless Stacker

The Wind Stacker is to-day a most important consideration. If it is not designed and built to do the required work thoroughly under all conditions the purchaser cannot expect to get satisfaction and adequate service.

The Sawyer-Massey Gearless Pneumatic or Wind Stacker, used on the "Great West," is the result of study and experience. It does its work thoroughly, due to the design and construction of the Fan and Drum. This feature has so far escaped the attention of many manufacturers, and we regard it of utmost importance.

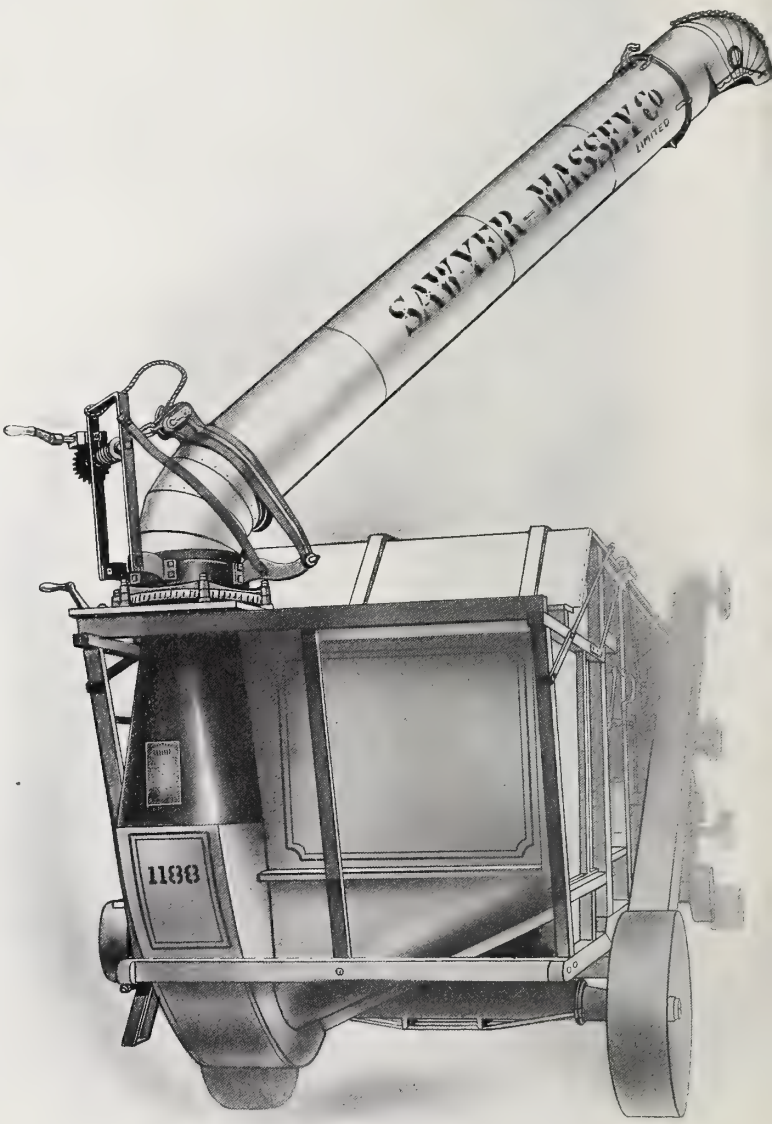
The Drum of the Sawyer-Massey Gearless Pneumatic Stacker is so designed and of such proportions, and the Fan so made, placed and speeded, that the straw is effectively stacked with lowest amount of power. Affording greatest efficiency, while most easily operated, it has remarkably few working parts to get out of order, to give out and require replacing. The simplicity of this Stacker must appeal to the prospective buyer.



Right View of Gearless Stacker on "Great West"
Showing compact manner in which it is attached and braced to the thresher

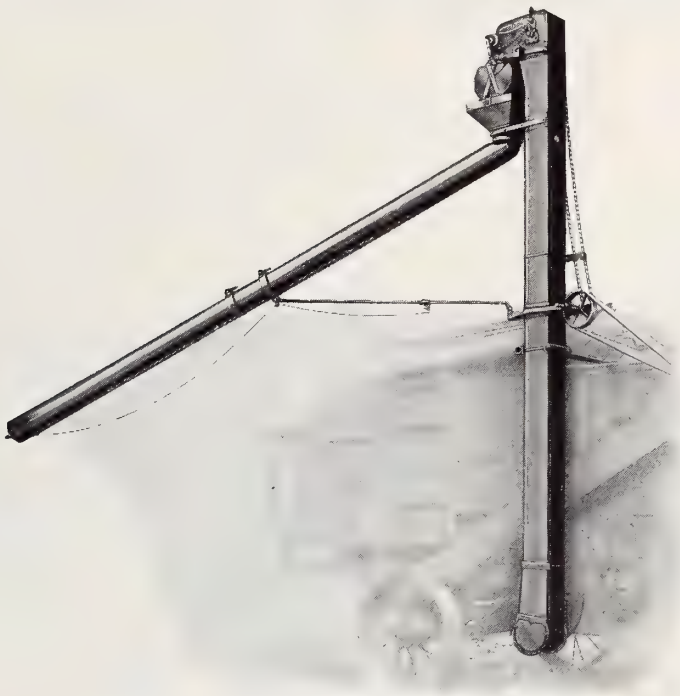
The Sawyer-Massey Straw Deck, moreover, discharges the straw into the hopper in such a manner that no friction is caused at this point, the straw being taken up through the pipe evenly, with no tendency to choke or clog. Every thresherman who has used one of these Stackers, or who examines one in operation, will appreciate the advantages of this feature.

The Sawyer-Massey Gearless Pneumatic Stacker is equipped with a large Idler Pulley located close to the pulley on the Fan of the Stacker, keeping the belt tight and increasing the grippage of same on the blower pulley.



Rear View of Gearless Stacker
Showing clearance between Drum and ground

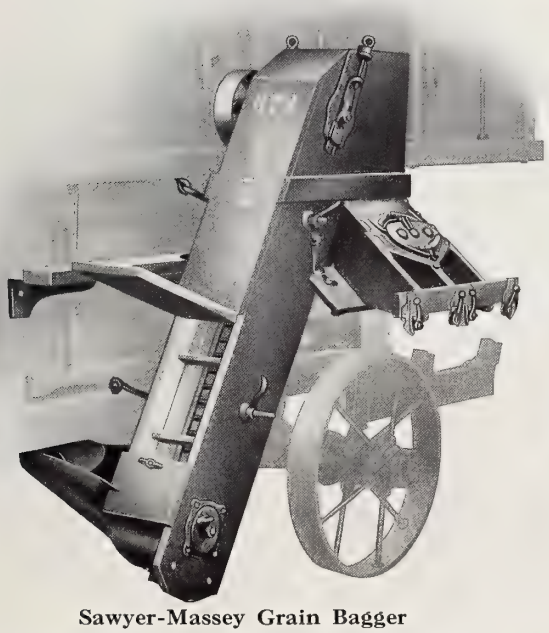
Sawyer-Massey Elevators, Baggers and Weighers



Sawyer-Massey High Elevator and Weigher

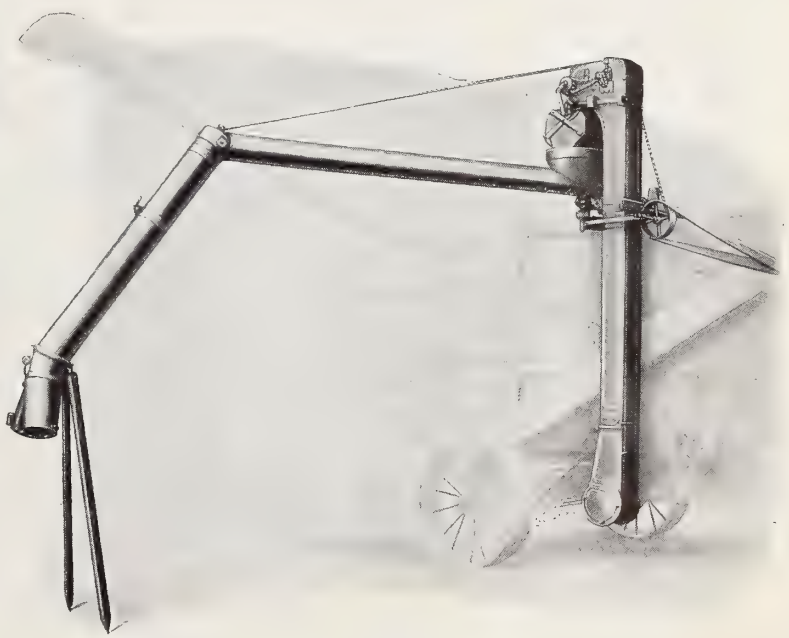
Sawyer-Massey High and Low Baggers are of the very latest styles and designs. We can supply them with or without Weigher attachment. By a very simple device the spouts can be raised or lowered, enabling the operator to load directly into the wagon or into bags on the ground.

We have them to suit all conditions, and guarantee satisfaction.



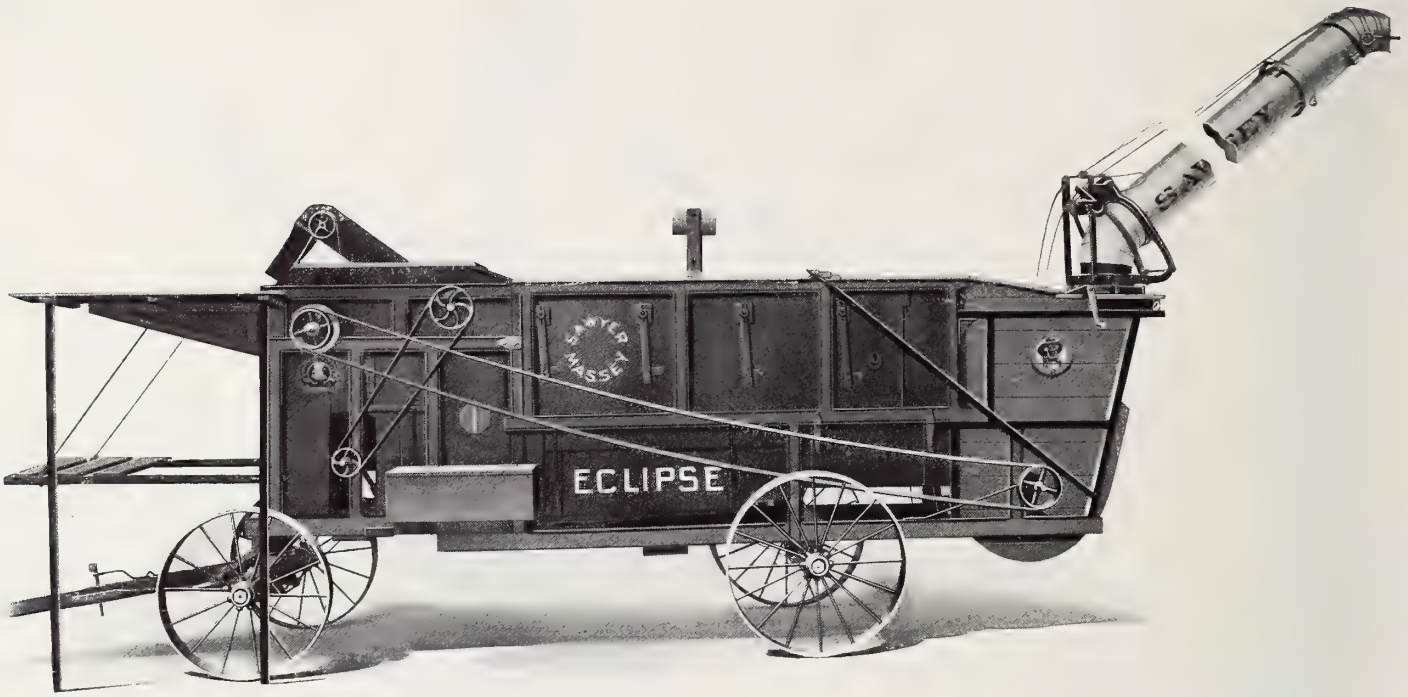
Sawyer-Massey Grain Bagger

Can be quickly attached to either side of Separator. It tallies number of bags filled.



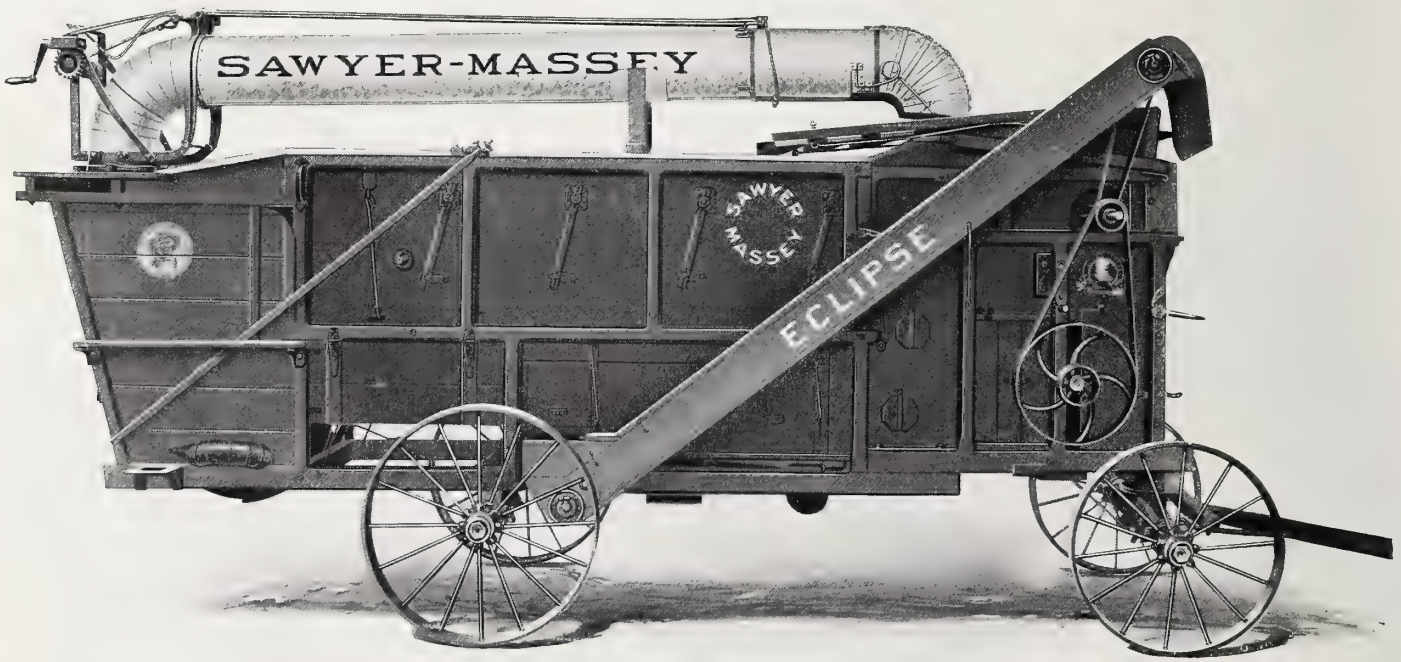
Sawyer-Massey Low Elevator, Bagger and Weigher

Sawyer-Massey "Eclipse" Thresher



Right Side View of Sawyer-Massey "Eclipse"

This shows the Thresher, with the Sawyer-Massey Gearless Wind Stacker extended, ready for operation. You will observe there are but two belts on this side, one for driving the beater and the other to operate the stacker.



Left Side View of Sawyer-Massey "Eclipse"

Here we have the machine ready for the road. The feed tables, foot board and wind stacker are folded on top. The absence of belts and pulleys is noticeable, but two belts being shown, and three pulleys, these to operate the cylinder and the grain elevator.

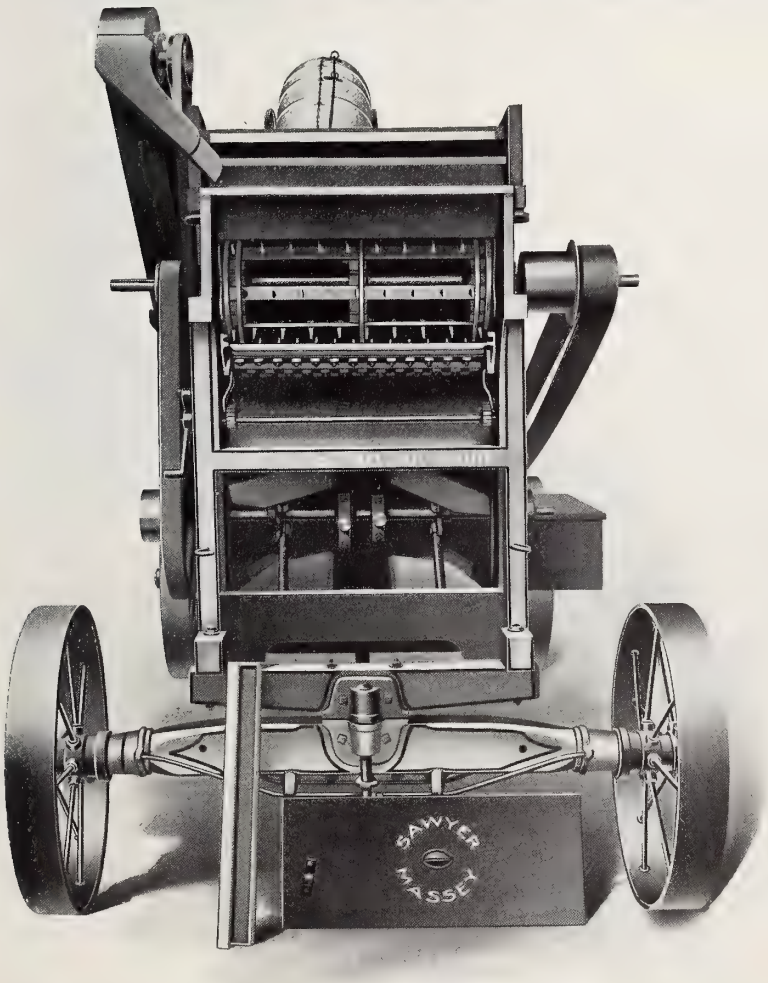
Sawyer-Massey "Eclipse" Thresher

The "Eclipse" is built in one size only, with 30-inch cylinder and 36-inch body. It is designed and manufactured to meet the needs of the smaller producer, for use with an 8-horse sweep power or with a 6 to 10 horse-power Gas Engine when equipped with straw carriers.

BELTS AND PULLEYS The illustration below presents a front view, showing the wide belt pulleys and belts in position. You will note that very few belts are required. The foot board and the feed board are folded over the top. Here they are entirely out of the way, should it be necessary to do anything with the cylinder or concaves. With few shaft-belts, etc., this machine is easy to keep in the best working condition, and less liable to get out of order. **This feature makes a smaller amount of power necessary than for operating any other machine of equal size.**

CYLINDER The door, which closes in the front, has been removed, showing the position of the pitmans, and how easy it is to get at them for either oiling or adjusting. The New Open Bar Cylinder, with large steel shaft supported by generous bearings, is shown to advantage, and must impress the reader on account of its strength and simplicity of construction.

SEPARATOR This thresher is equipped with a vibrating Separator 3 feet wide by 11 feet long, which consists of a perforated bottom and four tossing-forks. An adjustable iron fork is provided immediately back of the cylinder. This can be raised or lowered, as the condition of the grain requires. The fork covers an opening about 6 inches wide, and serves to separate a large portion of the grain from the straw before it reaches the separator.

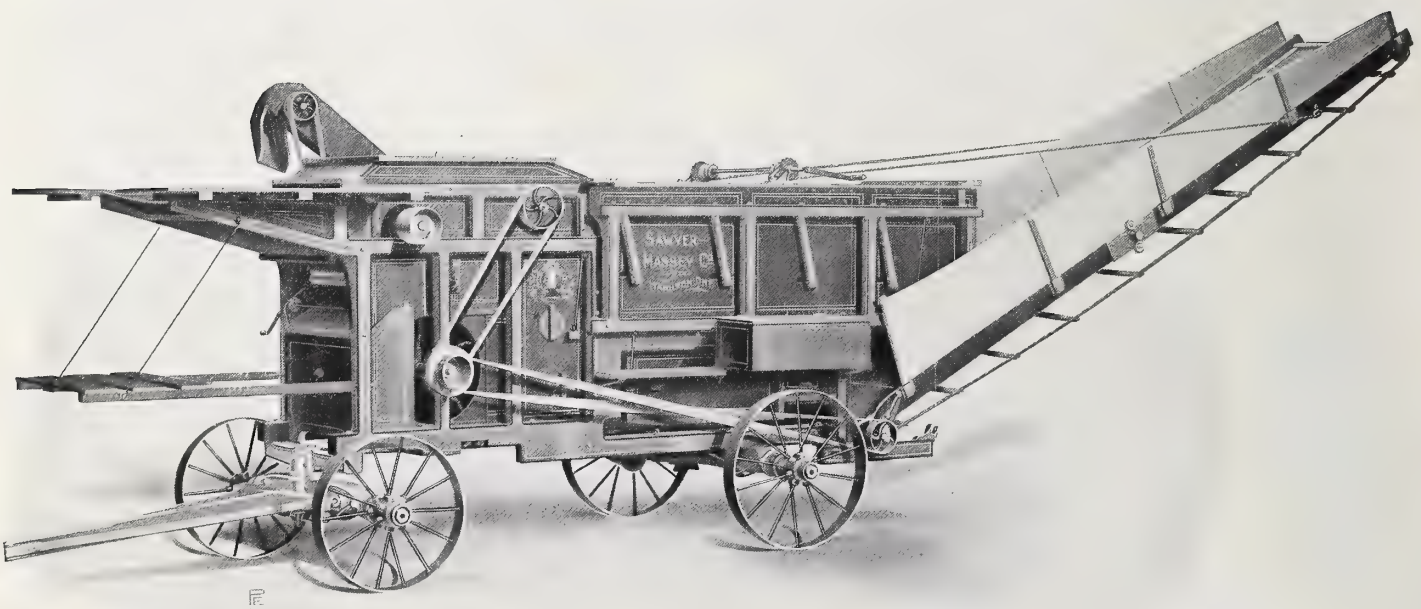


Front View Sawyer-Massey "Eclipse"

CLEANING. Realizing the significance of a good Fanning Mill, we have equipped the "Eclipse" with a mill consisting of a blast fan 32 inches in diameter, with a sieve shoe 3 feet wide by 4½ feet in length. Two sheet-iron sieves are placed in this. One of these, known as the Chaffer, has a punched mesh large enough to prevent straws, sticks, thistle heads, etc., from passing through. The other has a finer punched mesh fine enough to separate the straw, etc., that passes through the Chaffer from the grain, and which also catches the wind from the fan. The grass or weed screens are below these. Here the grain is finally separated before being conveyed to the grain spout. From this brief description it will be seen that the "Eclipse" Mill is perfect in detail, and **the most complete to be found in any separator having a capacity of from 500 to 700 bushels per day.**

Sawyer-Massey "Eclipse" Thresher

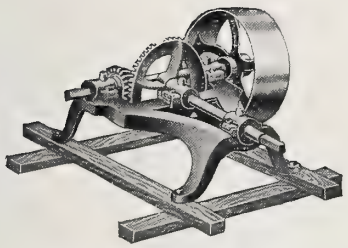
Sawyer-Massey "Eclipse" Thresher
With Carriers Folded, Ready for the Road.



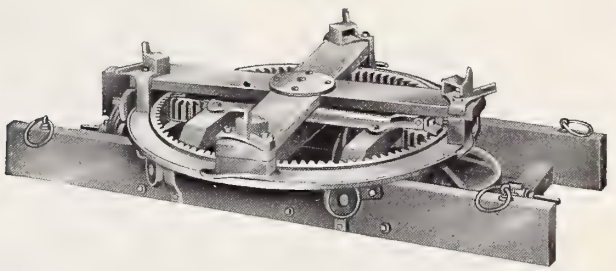
Sawyer-Massey "Eclipse" Thresher
With Carriers Extended and with Foot and Feed Board Attached Ready for Operation.

Sawyer-Massey Sweep Powers

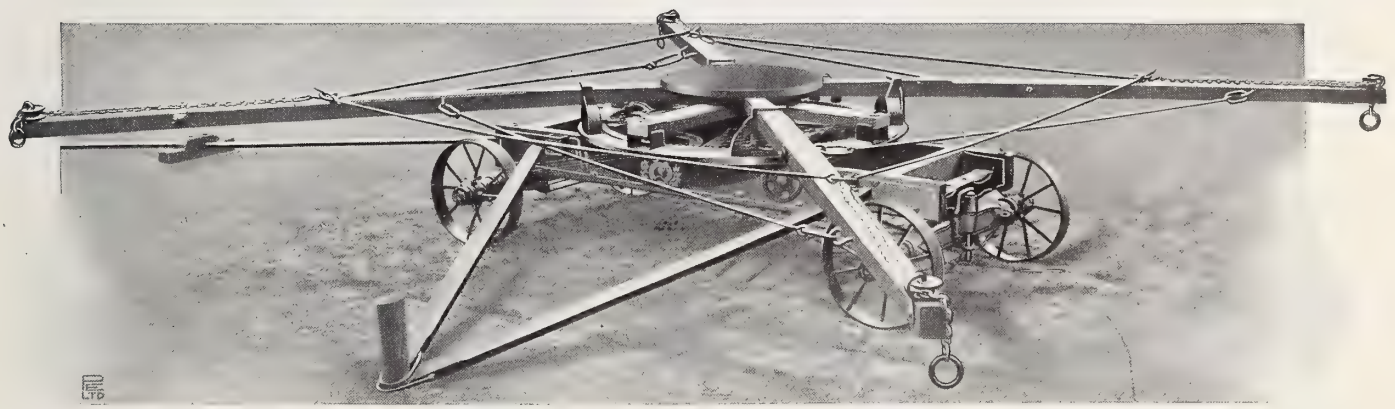
Simple, Economical, Built to Wear. Furnish Cheap Power Wherever Horses are Available.



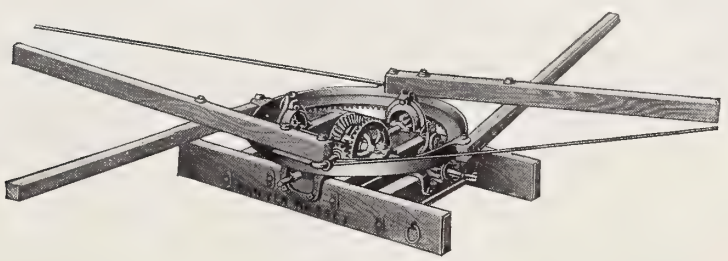
Sawyer-Massey Bevel Jack
Suitable for any size Horse Power



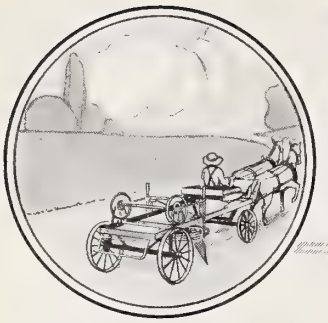
Four-Horse Power



Eight-Horse Power, Mounted on Steel Wheels

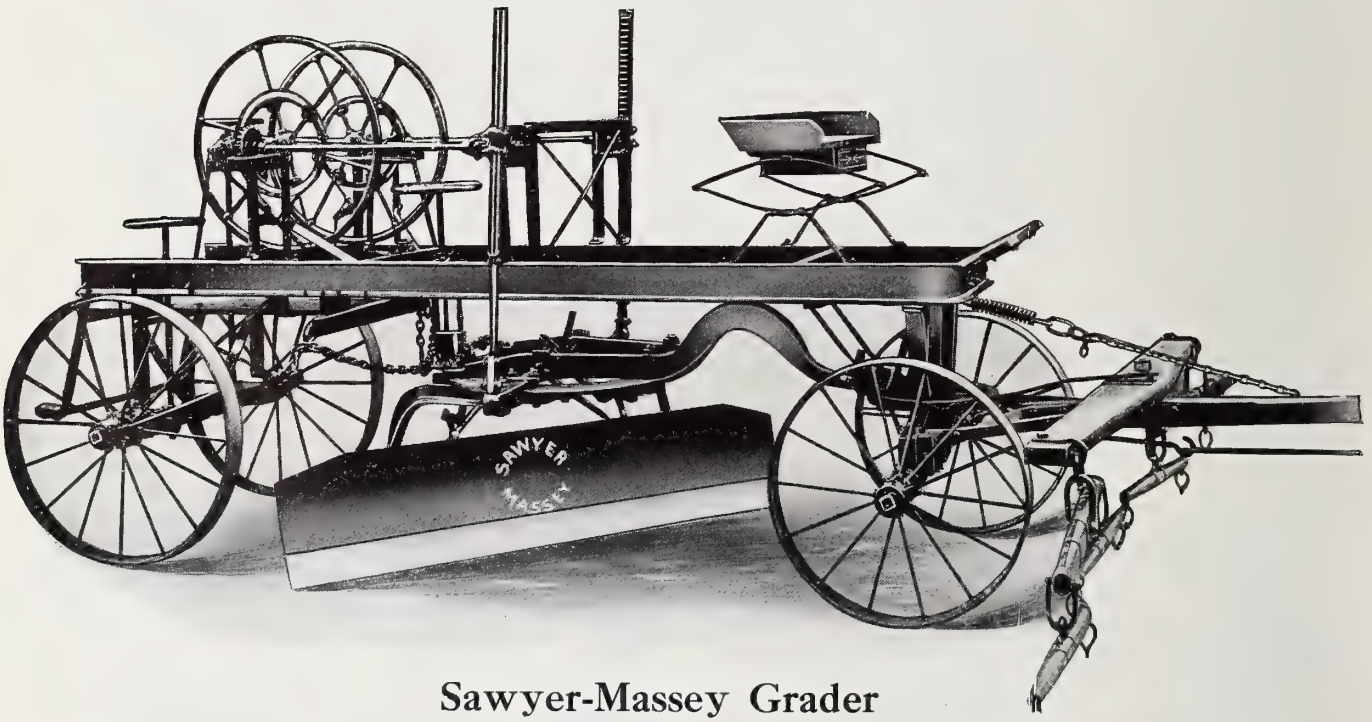


Two-Horse Power



ROAD-MAKING MACHINERY

Road Construction is receiving more attention to-day than ever before in the world's history. This in itself is indicative of Canadian progress. Good roads shorten distances and are most important to the farmer, making it easier and cheaper for him to market the products of his fertile fields.



Sawyer-Massey Grader

The Sawyer-Massey Grader is a strong serviceable machine, built for use in hard clay or tough sod without making the use of a plow necessary. Working left or right, in either direction, as required, it handles earth easily and with marked rapidity. It is so constructed that it will discharge plowed ground from the blade when working in a deep ditch or excavation.

We guarantee this Grader to cut with the point of the bar 24 inches outside of front wheel at an angle of 51 degrees with line of draft. And it will also cut with point of bar 17 inches inside of front wheel. Easily operated, it works most effectively as a leveller. It can also be used to excellent advantage in scraping paving or macadam streets.

Sawyer-Massey Junior Grader

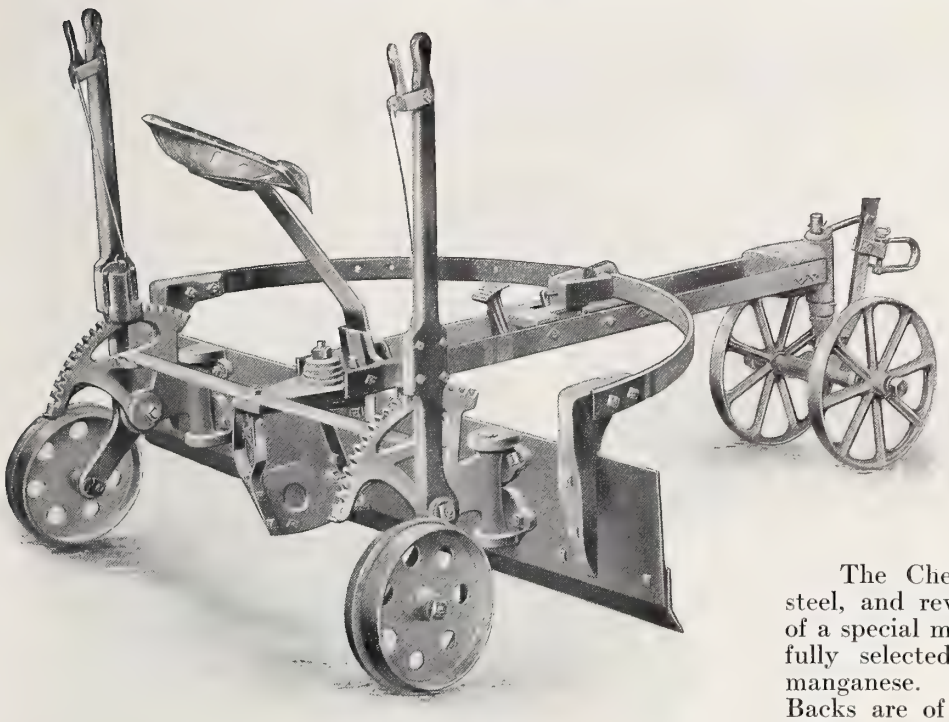
This grader is designed and constructed for light grading or levelling, where a heavy grader is not needed. While complete in every detail, we pride ourselves in its simplicity and general ease of operation.

The cutting blade can be easily reversed, either to right or left and to any desired angle, by the operator, without leaving his seat. The blade can be raised or lowered conveniently by levers placed within easy reach of the operator. This blade is of high carbon steel, securely bolted to the mouldboard. It will cut either deep or shallow. When worn out or dulled through long, hard usage it can be easily removed, sharpened or replaced. Attached to the rear of the blade is an adjustable anti-skidding device, which helps to hold the machine to its work.

The reverse is so constructed that the rear wheels and anti-skidding device are reversed automatically with the blade. The rear wheels are adjusted so that they work toward the point from which the machine is inclined to slip. This, in connection with the anti-skidding device, holds the Grader to its work with remarkable precision.

The machine is six feet long from centre of trucks, and is made entirely of iron and steel. The mouldboard, with blade attached, is 12 inches wide and 6 feet long. The rear wheels are 12 inches high, while the front ones are 16 inches. Weight, 535 pounds.

Sawyer-Massey Solid Steel Frame Crusher



Sawyer-Massey Junior Grader

Built throughout of open hearth steel, equipped with either a Stiff Elevator, or with an Elevator that folds over the framework for convenience in transportation. The folding Elevator can be unfolded and erected by one man in a few minutes.

The Frame is an open-hearth steel casting, with heavy ribs. The Lever and Jaw are constructed of the same material, and are very strong and dependable. The Eccentric is made of special carbon open-hearth hammered steel, which operates in long bearings. It is a single cam.

The Check Plates are of special hardened steel, and reversible. Crushing Plates are made of a special mixture of the toughest, hardest, carefully selected charcoal iron, mixed with ferro-manganese. They are unusually strong. The Backs are of soft iron, planed true. Change of product is brought about by the use of Adjusting Plates or Toggles of various widths. Twelve different sizes of product can be secured.

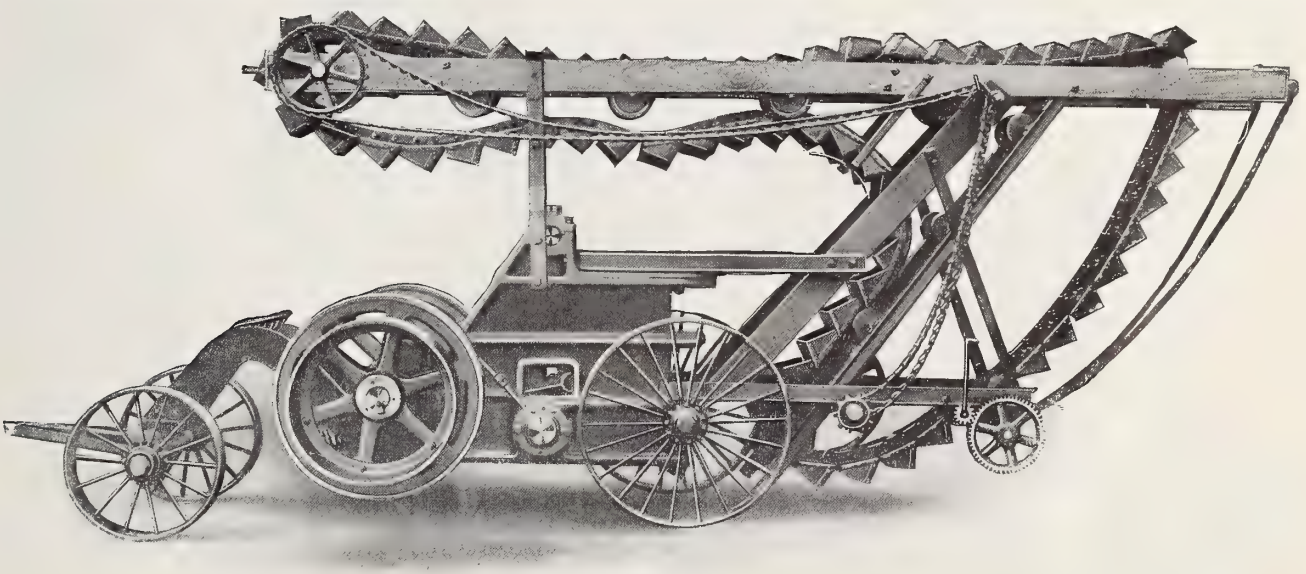
The Bearings are made of the best anti-friction metals. They are long, large, with ample provision for perfect and adequate lubrication.

The Oil Boxes are independent of the machine, and so can be easily removed and cheaply replaced. The Roller Oil Box serves as a receptacle in which to store oil. The shaft is automatically wiped and oiled at each revolution by means of the felt lining.

The Crusher is low to the ground. The Fly Wheels are below the top of the frame. We can furnish this machine on either wheels or skids.

Any length of Elevator, either folding or stationary, can be supplied. Additional feet can be spliced on at any time. Either chute or revolving screens are provided.

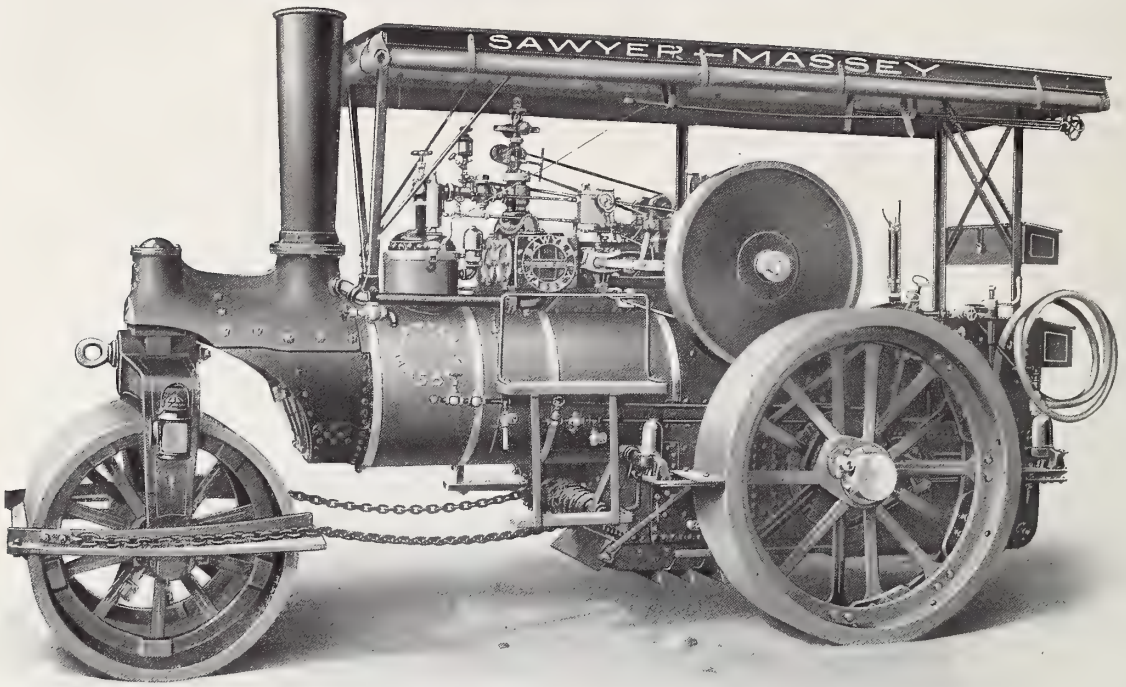
There is no machine manufactured for the purpose that surpasses this crusher in efficiency and durability.



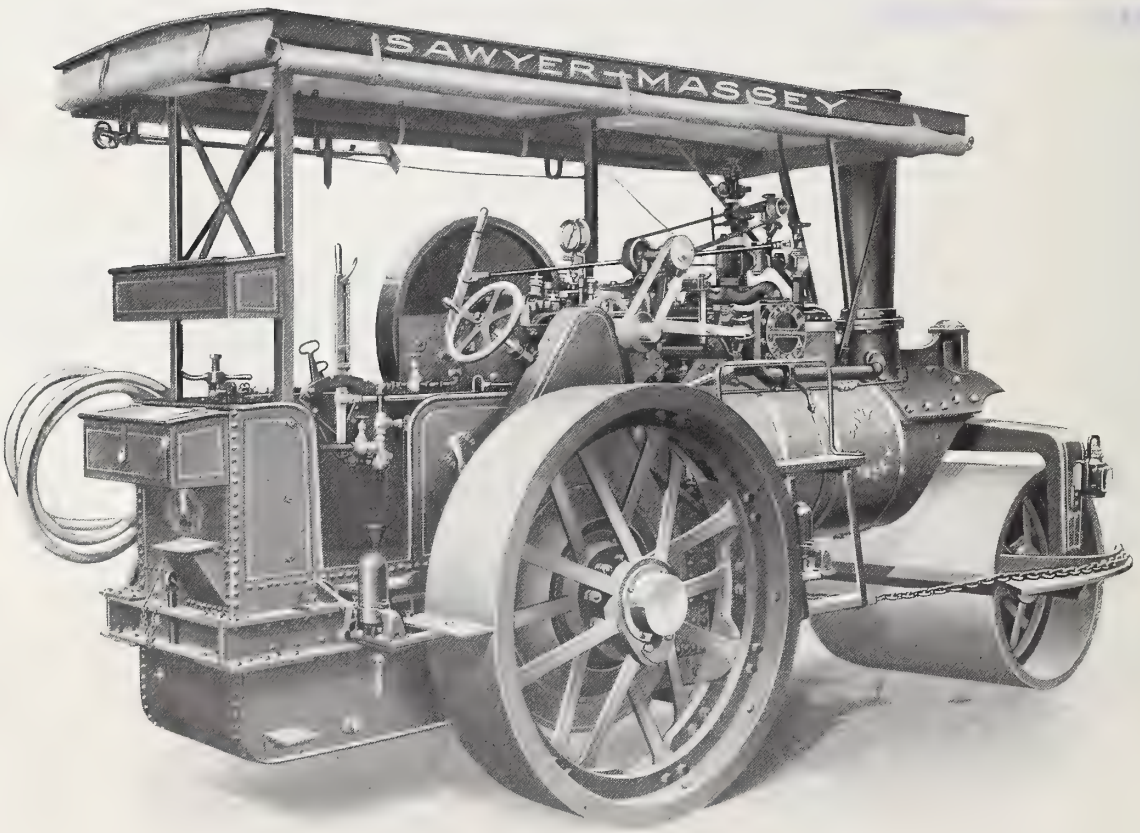
Sawyer-Massey Crusher, No. 10½, Mounted on Four Wheeled, Roller Bearing Steel Truck, with 24 Feet Centers, No. 10 Folding Elevator. Nos. 7, 8, 8½, 9, 9½, 10 and 10½ all mounted in this manner.

SAWYER MASSEY

Sawyer-Massey Steam Road Roller



Left Side View Sawyer-Massey Roller
Prices and Information on Request



Rear and Side View Sawyer-Massey Roller
Showing Tender and Operating Levers

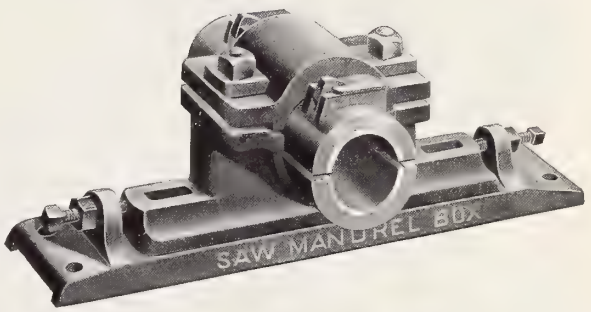
PORTABLE SAW MILLS

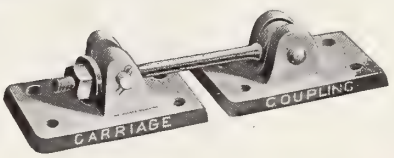
In response to the demand for Portable Saw Mills, we have developed a line which has won an unusual amount of popularity. Strong, serviceable and well built in every detail, they leave nothing to be desired, and give the greatest possible degree of satisfaction to the user.

To anyone interested we will be pleased to give special information relative to our Saw Mills, on request.

Portable Saw Mill, No. 2

Our Saw Mill, No. 2, is designed to meet the wants of those requiring a Mill adapted to a wide range of work, using either light or heavy power. It is simpler and has fewer parts than other Mills. It is easy to set up and keep in order; in fact, it can be set up in a few hours.

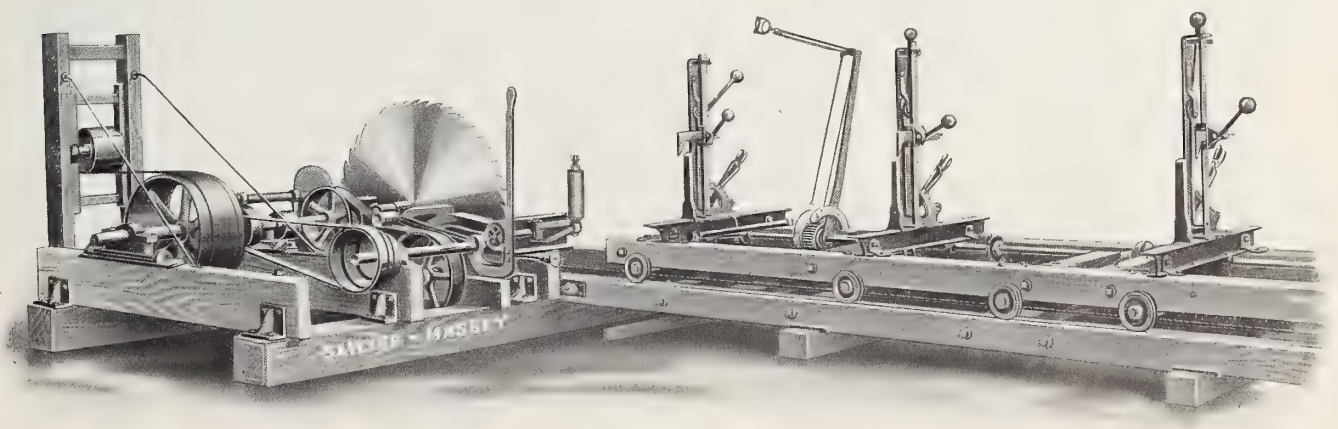




FRAME. The Husk Frame is a strong wooden frame with an extension to receive carriage tracks. This feature insures quick setting-up and perfect alignment of the track with the saw. This will not be found in any other Mill, and makes our Mill a perfect Portable Saw Mill in practice as well as in name. The Frame will take saws up to 56 inches in diameter. There are three heavy boxes for the saw mandrel, one box on each side of main drive pulley and one close to saw.

SHAFTS. All Shafts are steel, and larger in diameter than are generally found in other mills. Pulleys are large, with wide faces, so as to insure against slipping of belts.

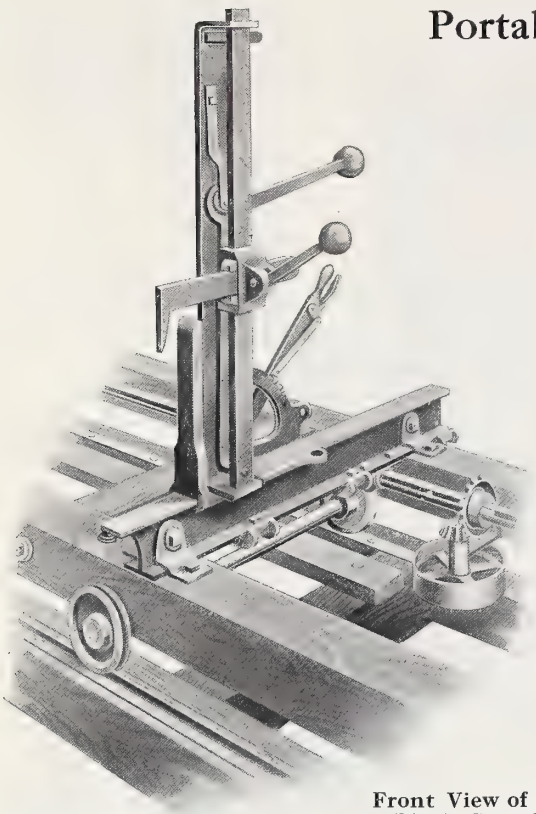
MANDREL BOXES. The Saw Mandrel Boxes are long and strong, lined with the best composition metal, having a pivoted bearing, and can be adjusted by set-screws so as to give any amount of lead to the saw. The Boxes are provided with large oil cavities in each end of the Box.



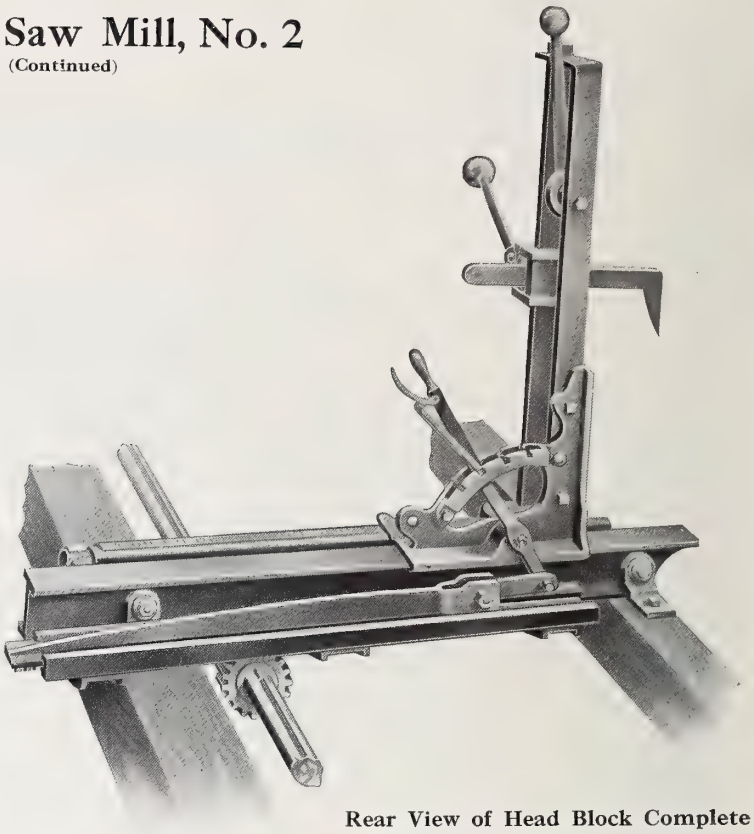
Sawyer-Massey Portable Saw Mill, No. 2

Portable Saw Mill, No. 2

(Continued)



Front View of Head Block Complete

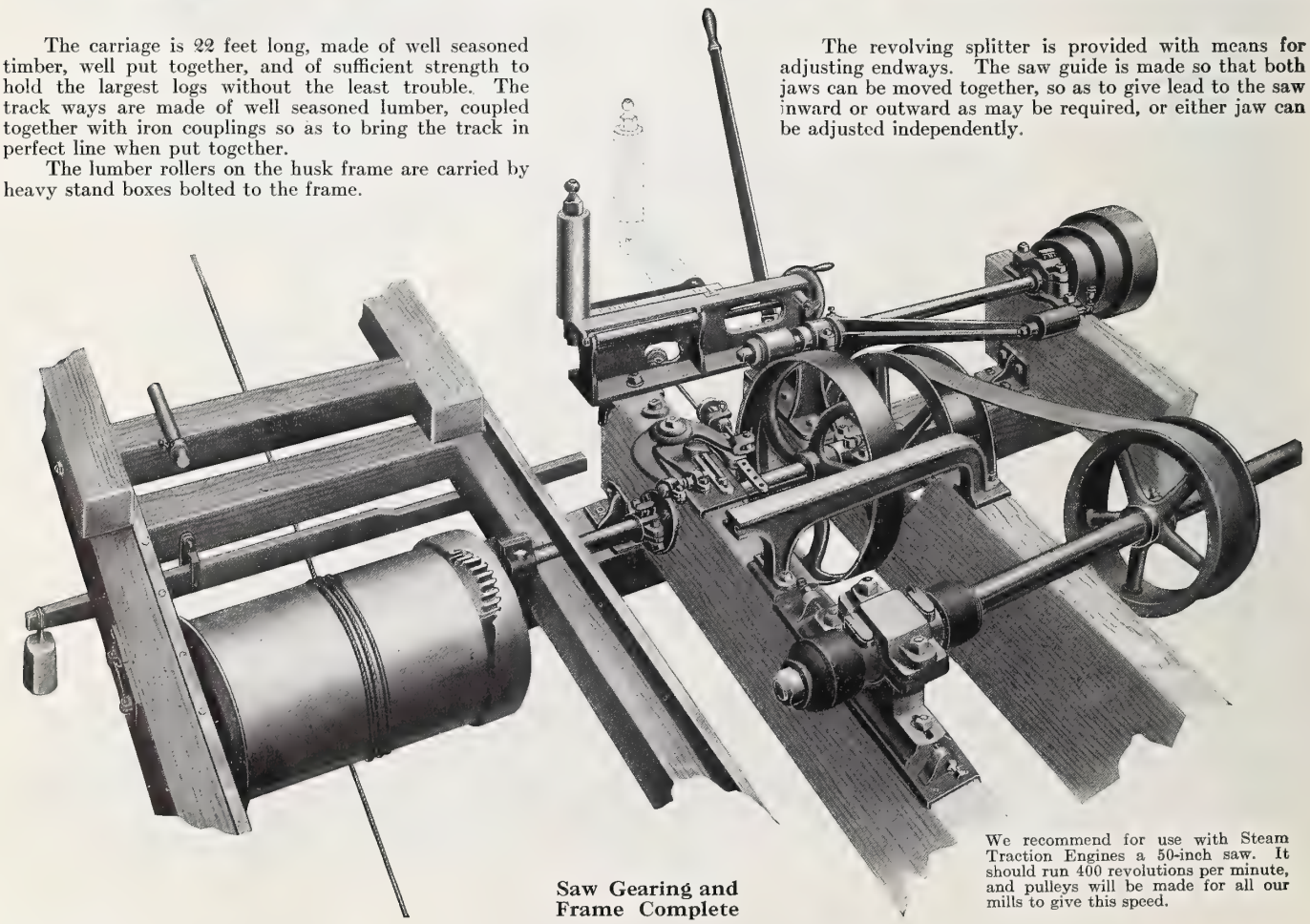


Rear View of Head Block Complete

The carriage is 22 feet long, made of well seasoned timber, well put together, and of sufficient strength to hold the largest logs without the least trouble. The track ways are made of well seasoned lumber, coupled together with iron couplings so as to bring the track in perfect line when put together.

The lumber rollers on the husk frame are carried by heavy stand boxes bolted to the frame.

The revolving splitter is provided with means for adjusting endways. The saw guide is made so that both jaws can be moved together, so as to give lead to the saw inward or outward as may be required, or either jaw can be adjusted independently.



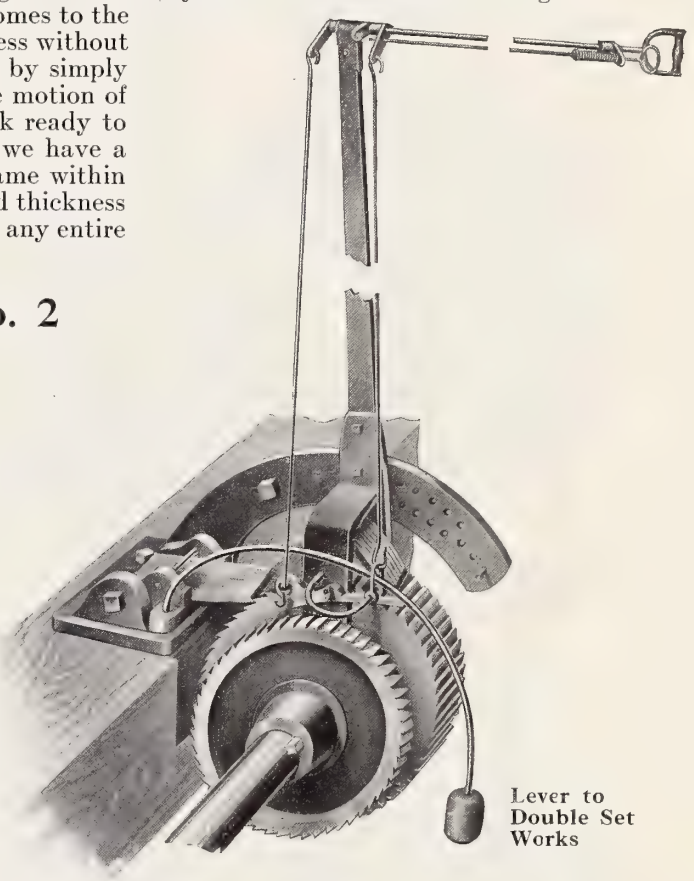
Saw Gearing and Frame Complete

We recommend for use with Steam Traction Engines a 50-inch saw. It should run 400 revolutions per minute, and pulleys will be made for all our mills to give this speed.

Portable Saw Mill, No. 2

(Continued)

The lever for controlling the Friction Feed and Gigging Back are one—by simply throwing the lever backwards or forwards, it throws the Gigging Back in or out of gear. The sawyer's Set Works on the Carriage are so placed that each time the Carriage comes back, the lever comes to the sawyer's hand, so that he can set to saw any desired thickness without leaving his position at the Feed and Gig Back Lever, and by simply turning his hand he throws all pawls out, and the opposite motion of Lever which brought the knees forward will gig them back ready to put on the next log. In connection with the Set Works we have a Lumber Gauge, which is attached to the Husk or Saw Frame within easy reach of the sawyer, and it is so placed that any desired thickness can be quickly set and a uniform thickness preserved during any entire day's sawing.

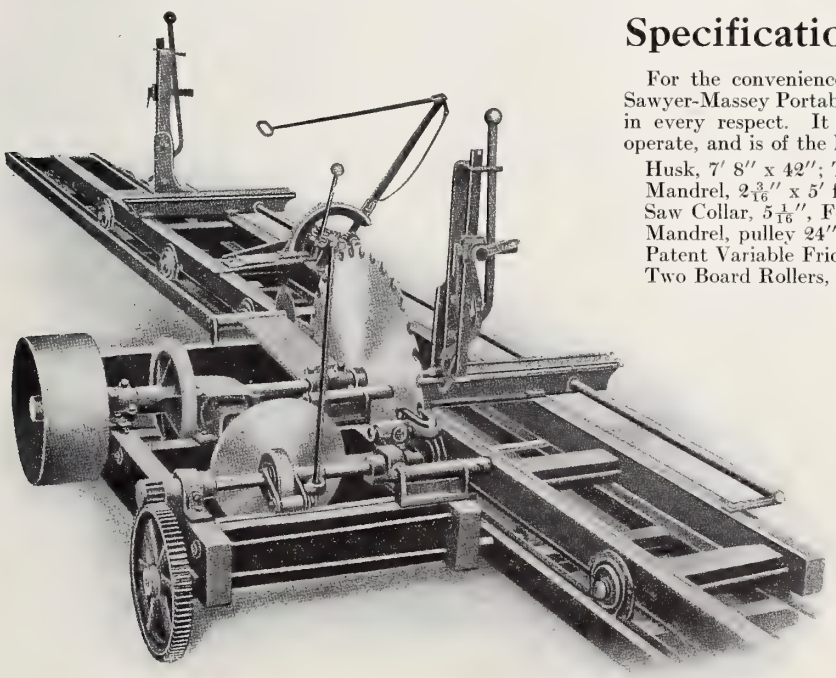


Lever to Double Set Works

Specifications Portable Saw Mill, No. 2

(Right-hand Saw Mill)

Track, 56′ long.
Carriage, 22′ long.
Mandrel, $2\frac{3}{4}$ x 9′ long.
3 Headblocks with Knight Dogs.
Friction Receder.
All Log Seats are steel and machined to fit headblocks.
Drive Pulley, 24″ diameter, 12″ face.
3 speeds on the feed.
Slow Feed, $1\frac{1}{8}$″ to each revolution of saw.
Medium Feed, $1\frac{7}{8}$″ to each revolution of saw.
Fast Feed, $2\frac{15}{16}$″ to each revolution of saw.
Cable Feed, using large sheave wheels and large drum for cable to roll on.
Improved Lumber Gauge by means of which every board is same thickness.
Ratchet Setworks, also Taper Set on all headblocks, a great convenience when handling logs that are much smaller at one end than the other.
Large Groove Track Travellers with shafts running clear through the carriage, all shafts having babbitted split boxes.
Steel "V" Shaped and Flat Track.
The Log Seats are 48″ long, and the headblock has a bearing on same of 16″.
Has a Belt Tightener in a sliding frame that automatically acts on the slack of the belt.

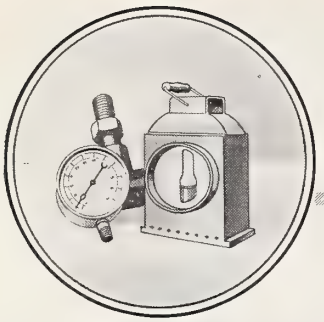


No. 1 Variable Friction Feed Saw Mill
(For 4 to 20 H.P.)

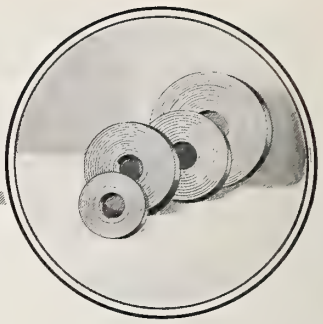
Specifications Portable Saw Mill, No. 1

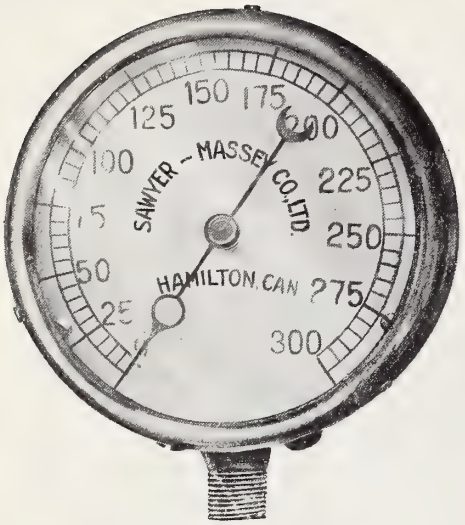
For the convenience of our customers requiring a smaller mill than the Sawyer-Massey Portable No. 2, we build the No. 1, which is smaller and lighter in every respect. It has fair capacity, does not demand heavy power to operate, and is of the latest improved Friction Feed type.

Husk, 7′ 8″ x 42″; Timbers, $3\frac{1}{2}$″ x $9\frac{1}{2}$″.
Mandrel, $2\frac{3}{16}$″ x 5′ for 2″ saw hole, $\frac{5}{8}$″ pins, centres on 3″ circle.
Saw Collar, $5\frac{1}{16}$″, Forged Steel; 8″ Arbor Boxes, chain oiling, adjustable.
Mandrel, pulley 24″ x 10″.
Patent Variable Friction Feed.
Two Board Rollers, Steel Spreader Wheel and Roller.
Screw-Adjusting Saw Guide.
Carriage, $26\frac{1}{8}$″ x 22′, in two sections; Timbers $3\frac{1}{2}$″ x $5\frac{1}{2}$″. Rack Beam, 30″.
Six sets 6″ Trucks, $1\frac{1}{8}$″ Axles, babbitted boxes, with cups for waste and oil.
Six "Success" Track Scrapers.
55′ "Diamond" Guide Track and 55′ plain flat track irons and nails, without stringers.
Two 36″ Ratchet Headblocks and Automatic "TRIPLEX" Steel Dogs.
Single-Acting Friction Set Works and Quick Receder.
18′ $1\frac{11}{16}$″ Set Shaft, slotted full length with flanged coupling.
Monkey Wrench, Cant Hook with hickory handle, Oil Can, Arbor Wrench.
Largest Saw, 54″, unless ordered special for larger.
Largest Log, 40″ x 28′, and larger by turning.
Capacity, 2,000′ to 12,000′ per day.
Wire rope drive.
Weight, 3,435 pounds.



ACCESSORIES





Sawyer-Massey Steam Gauge

The Sawyer-Massey Steam Gauge is of the double tube type, specially constructed to withstand the severe service to which the fittings on engines used in plowing and threshing are subjected.

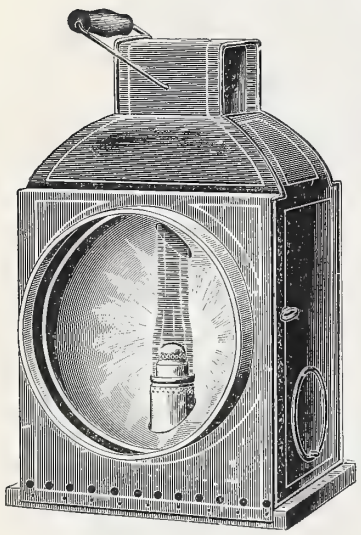
The spring is of extra heavy seamless drawn brass tube, carefully tested to eliminate defects in material.

The movement and connections are of special design and material, which have been proven, after exhaustive tests, capable of withstanding the severe service several times as long as a gauge of ordinary construction.

The workmanship and material throughout are, in every respect, of the very best.

This type is self-draining, avoiding the danger of freezing up in cold weather.

Traction Headlight

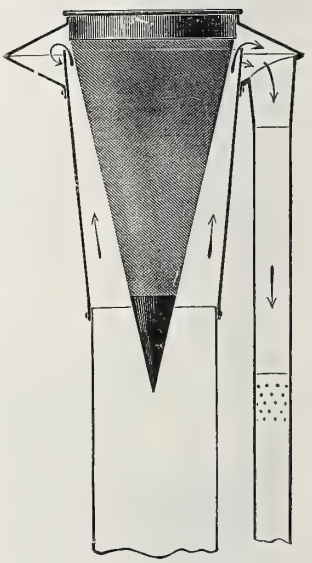


This excellent Traction Headlight is one we can recommend in every way. It has a Reflector 10 in. in diameter, 3¾ in. deep, with burner of locomotive headlight pattern, taking No. 87 chimney. The wick is "Circular Moehring," 5 in. long. The case is 21¾ in. high, 12 in. wide, 9¾ in. deep.

This headlight will throw a bright, strong light, and at the same time, will be found wind and jolt proof.

Diamond Spark Arrester

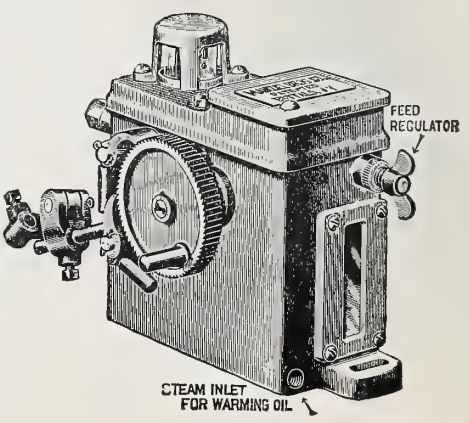
The Sawyer-Massey Diamond Spark Arrester is provided with a vent for the large sparks, which are not forced through the screen, but are driven into the cone at the top of the stack, and from there in to the reservoir pipe into lower section of which they are deposited. A current is created in the cone top and reservoir pipe by putting a number of air holes in the latter. At the bottom section of the reservoir pipe is a hinged cover and the sparks that accumulate there can be readily and promptly removed. It is the best appliance in use for protection against fire from sparks.



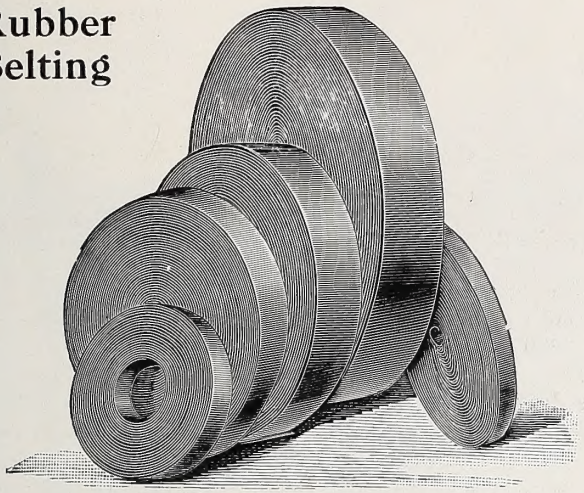
Manzel Oil Pump

The Manzel Oil Pumps are positive in action. They feed as regularly as a watch ticks, and require no attention. They are guaranteed to work in any temperature—hot or cold—using any kind of oil. They have a large sight feed, which can be seen from all sides of engine, and has a great range of feed, from nothing to fifteen or twenty drops with each stroke. The feed can be regulated while the engine is running.

The gauge glass shows the amount of oil in reservoir all the time. There is a hand attachment, which allows it to be used as a hand pump. They are provided with a heating chamber, for warming the oil in extremely cold weather. The pawls are of hardened drop forged tool steel, and will last for years. No stuffing boxes. No packing. No possibility of leaking. They are dust proof, having a hinged cover with catch, and all working parts are inside. They cannot be put together wrong, and will last as long as your engine. They will save from thirty to sixty per cent. of oil. No extra charges. Everything is included for one price.



Rubber Belting

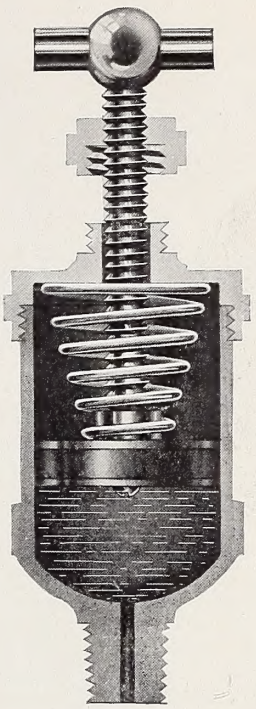


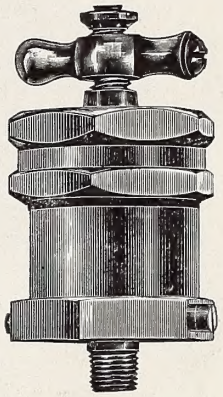
We make a specialty of Endless Rubber Belts for thresher purposes. Conditions in this service are of the most trying character: first, from the fact that the Belts are required to run at high speed over comparatively small pulleys, involving great strain; second, on account of the constantly changing conditions of service with exposure to wind and weather; third, because many of these Belts are used by the inexperienced.

Sawyer-Massey Grease Cup

(Patented)

This Grease Cup is the only one on the market which can be instantly changed from a force feed to an automatic, and vice versa.



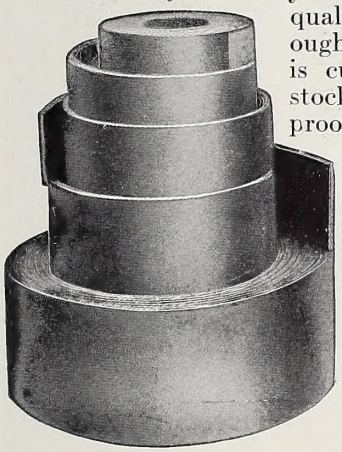


Automatic Grease Cup

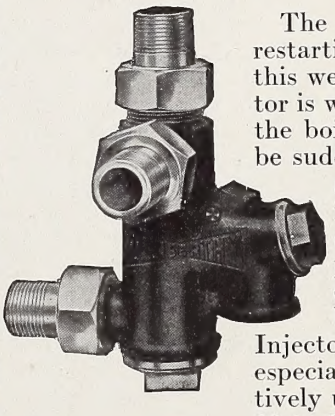
This Automatic Force-Feed Grease Cup is used on the Crank Pin of Class "C" engines.

Waterproof Leather Belting

All Sawyer-Massey Leather Belting is of select quality, and will be found thoroughly waterproof. The leather is cut from high-grade centre stock put together with waterproof cement. This leather is treated by a special process to resist water. The finished Belt is absolutely impervious to any amount of moisture, and will be found running under very wet and hard conditions outside, as well as in saw, pulp, paper and other mills; steam and dampness do not affect it. We cannot too strongly recommend it.



Penberthy Automatic Injector



The "Penberthy" is a perfect restarting automatic machine. By this we mean that when the Injector is working and forcing water to the boiler, if the current of water be suddenly broken by any cause, such as a sudden jar or jolt in the case of a traction engine, the Injector will pick up the water and again establish the current to the boiler automatically. All Injectors used on our boilers are especially designed to work effectively under pressure varying from 60 to 175 pounds.

Cotton Stitched Belting

Is made from a close-woven, high-grade cotton duck. A special width is woven for each width and ply of finished Belting made, thus giving two selvage edges and ensuring when folded and stretched a true even-running Belt. The Belts are impregnated in a waterproofing compound, which not only renders them proof against the action of water, oils and steam, as well as heat and cold, but permits their retaining their flexibility.

They are further painted with an elastic paint, forming a tough skin on the outside of the Belt, after which they are thoroughly tested by being run for a time on pulleys.

All Main Drive Belts sold by us are warranted by the manufacturers not to open up in the plies, break in the splice or split in the seam, while running under ordinary conditions.

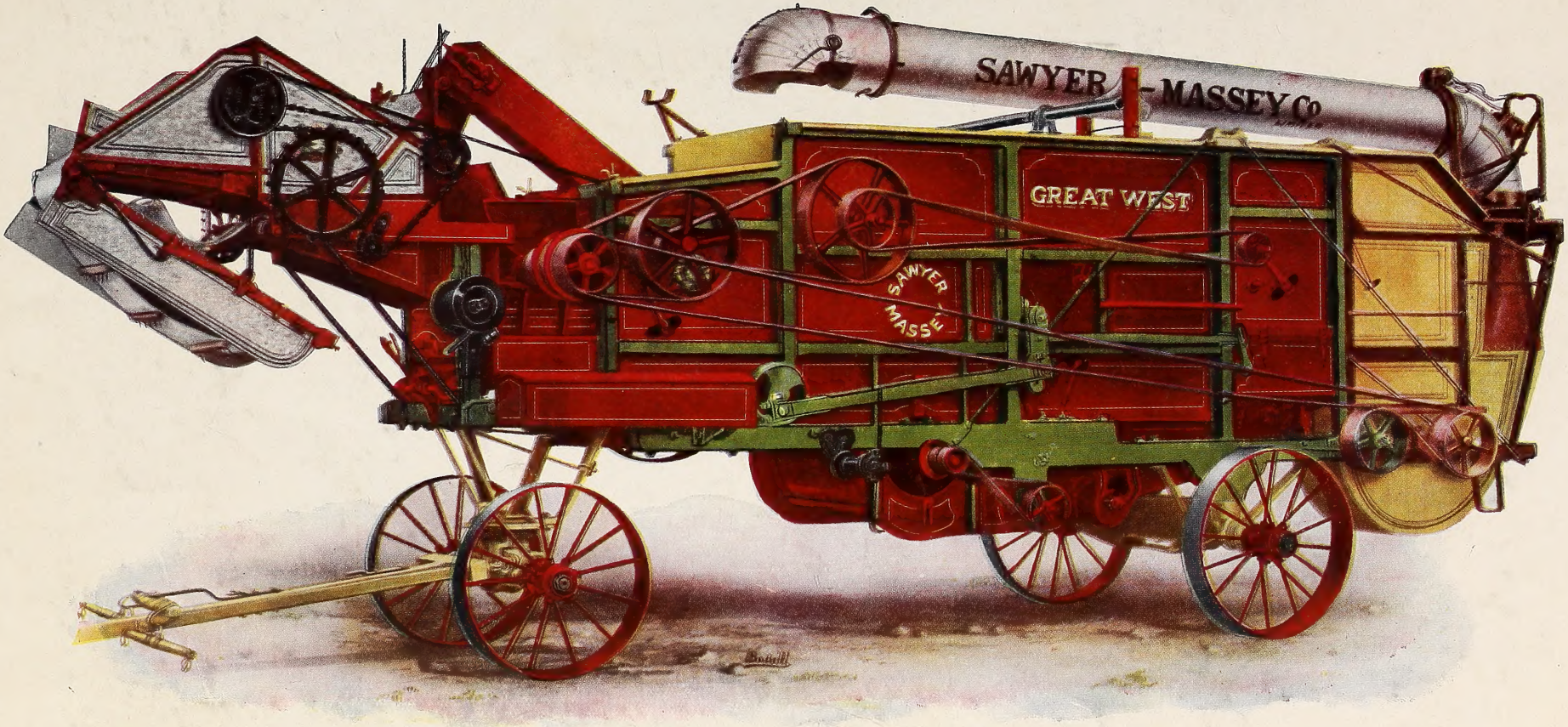
Any Belt claimed defective must be returned for inspection, freight prepaid, before December 15th.

No claim will be allowed where Belts show excessive wear or chafing on the edges, and Agents will in no case send in such Belts. No claim will be allowed for defects of any nature after January 1st next on Belts sold during the season.

We carry in stock, and can supply promptly, all Threshing Supplies, including, in addition to those here illustrated, Belt Laces, Hooks and Punches, Hose, Valves, Stop, Blow-off and Gauge Cocks, Whistles, Oil Cans, Wrenches, etc. Full Catalogue sent on request.

Sawyer-Massey Branch Offices and Warehouses in Manitoba and Saskatchewan

Written and Designed by
L. A. Pratt Advertising Co., Detroit and Windsor.
Printed by Southam Press Ltd., Toronto

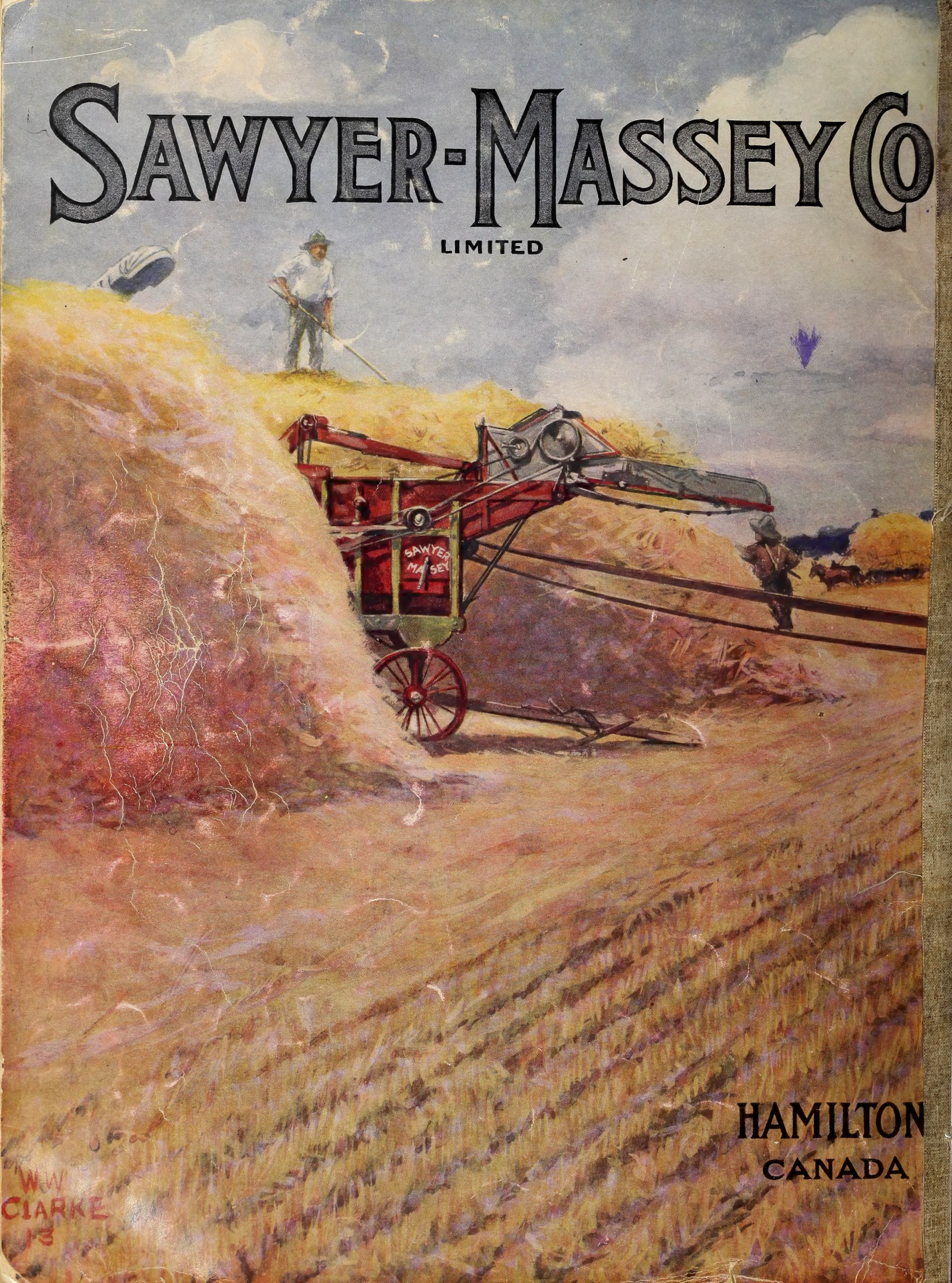


The Sawyer-Massey "Great West" Thresher
The Premier Thresher of Canada

LORNE J. McRITCHIE
Box 138
ZEALANDIA — SASK.

SAWYER-MASSEY CO

LIMITED



HAMILTON
CANADA

W.W
CLARKE
13